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DECEMBER 1959

THE MAGAZINE OF TASTE AND SCENT

Honey in Medicinals...Page 25 • Aerosol Development...Page 27

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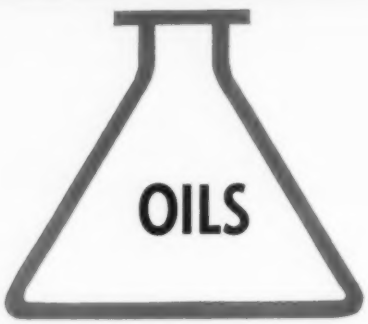

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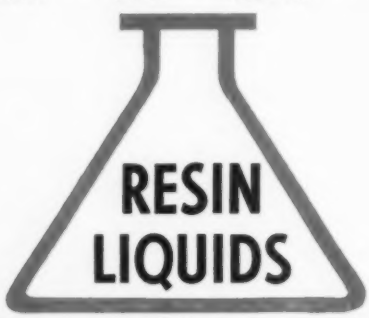

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American Perfumer
AND AROMATICS

VOL. 74, NO. 6 DECEMBER, 1959

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Milestones...

Hindsight, it has been said, is always 20/20. Second-guessing is not very productive; often no more than a fanciful waste of time. Yet 1959 is, I feel, a year that history will certainly reflect upon.

History will probably record this year as the year of the moon shot, though many of us will remember it more vividly as the year of the TV Quiz scandal, the cranberry scare, colors delisting by the F.D.A., and the longest and most expensive steel strike in our history.

Above all of these milestones, it has been a year of economic boom; of record production, record sales, record earnings for the industry. The stock market has established new highs. The last few issues of The American Perfumer have reported a great number of companies declaring stock dividends, expanding facilities, announcing stock splits.

Among the milestones of the year, we must also note its forebodings: the outcome of F.D.A. legislation and its effect on the toiletries and flavor industries; the effect of the steel strike and possible rail strike on the projected boom for 1960; the increasing competition in world trade.

Whatever will be said of the next year will be based on the sound decisions we must make today. Let us not pause, in a year's time, to reflect on them sadly.

James H. Moore, Jr.
Publisher

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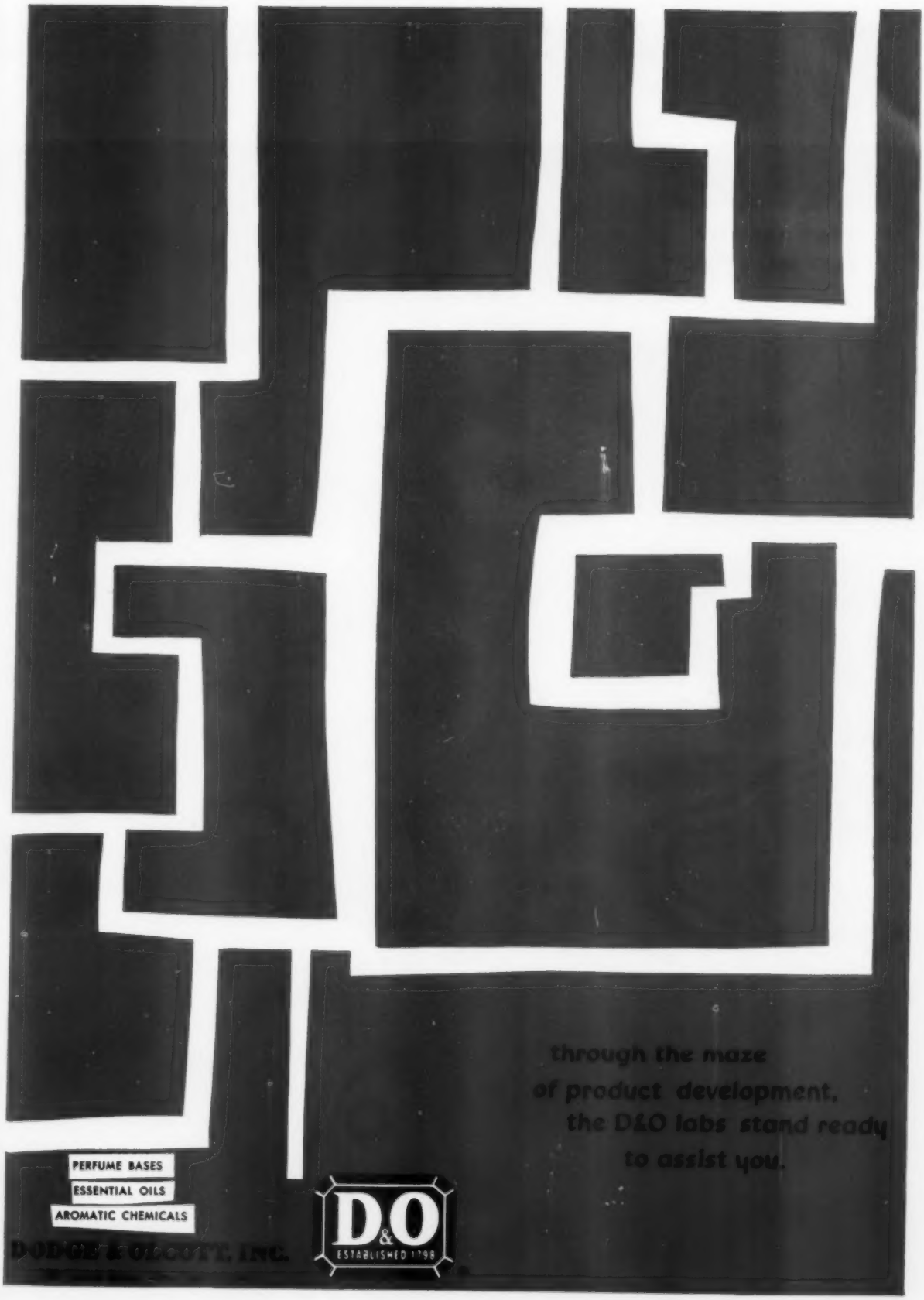
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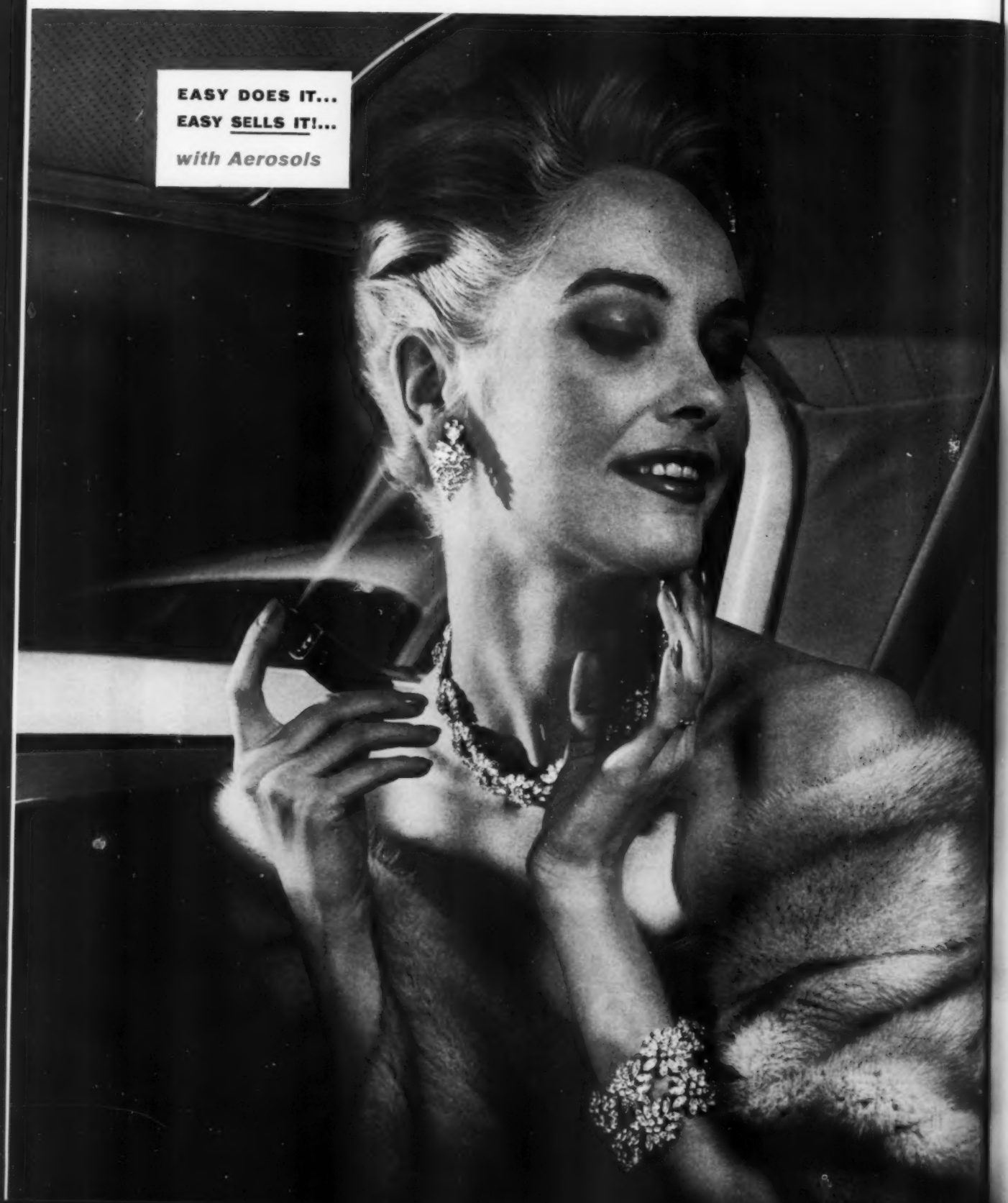

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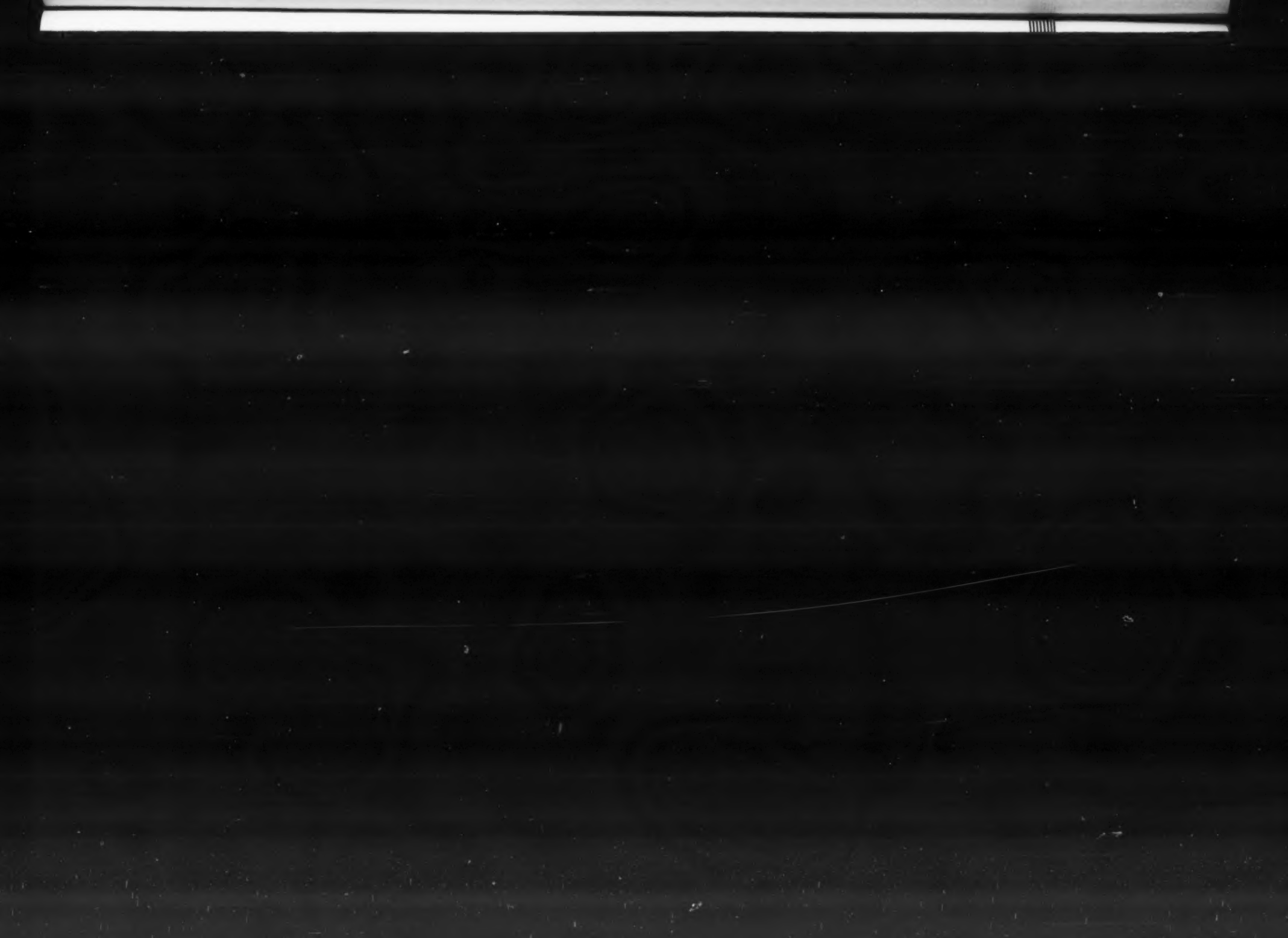

LAST MINUTE NEWS . . .

Coty President Decries TV Quiz Fraud

Philip Cortney, president of Coty, Inc., brings his public crusade against the rigged TV Quiz frauds to a dealer level with his "Open Letter to Druggists." Stressing that "customer confidence is the druggist's most important asset," Mr. Cortney explains in the "open letter" why he has been crusading for honesty in business. Mr. Cortney stresses that "the callous disregard for elementary honesty casts doubt on the quality and integrity of the products advertised." He goes on to say, "It is important to realize that the rigged quiz shows are but a symptom of a deep moral decay. Too many people seem to be unable to distinguish between right and wrong. The greatest threat to our way of life comes from those whose greed for profits obliterates all concepts of decency and honesty." Mr. Cortney launched his crusade in New York City with a speech at the Sales Executives Club. He has since spoken in San Francisco, Chicago and Philadelphia.

Colgate Enters Ethical Drug Field

In a joint statement, the Colgate-Palmolive Co. and Lakeside Laboratories, Inc., recently announced that an agreement has been made for Colgate to acquire Lakeside Laboratories, Inc. in exchange for Colgate stock. Subject to the completion of all necessary formalities, the transaction will result in the issuance of about 1¼ shares of Colgate stock for each share of Lakeside stock now outstanding. The transaction involves over $13,000,000 at the current market price of Colgate stock. Upon consummation of the arrangement, Lakeside will operate as a wholly-owned subsidiary of the Colgate-Palmolive Co. No change is contemplated in the company's management, personnel or operations except that Evan P. Halfaer, who has headed the Lakeside business since 1932 and is now its president, will become chairman of the board of the new Colgate subsidiary.

Harold L. Janovsky Discusses Modern Flavor Technology

Harold L. Janovsky, chief flavor chemist of Fritzsche Brothers, Inc., was guest speaker recently at sectional meetings of both the American Association of Cereal Chemists and the American Chemical Society. He discussed modern flavor technology from a practical rather than the scientific point of view. In his introduction, he touched briefly on the physiological aspects of flavor, following which he covered in greater detail such flavor sub-divisions as imitation fruit flavors, true fruit flavors and the vanillas, reviewing their history, growth, processing and manufacture.

Toni Dedicates Expanded Laboratories

The Toni Company has officially dedicated its expanded research laboratories in the Merchandise Mart, Chicago, largest in the world devoted to the study of cosmetic products for use on hair and skin. Raymond E. Reed, vice-president in charge of technical operations, reported that the dedication marked the completion of a two-year expansion program in the company's research department. The program involved doubling of Toni's Chicago research facilities, acquisition of much new, valuable and unique laboratory equipment and a substantial increase in the division's technical staff. The Toni Co. will allocate a record $2,000,000 budget to its laboratory activities for 1960.

Dr. John Heller Cites Cancer Chemotherapy Progress

Dr. John R. Heller, director of the National Cancer Institute, in an address before the luncheon meeting of the Drug, Chemical and Allied Trades Assn., said that there are an estimated 450,000 new cases of cancer diagnosed every year, and that annually about a quarter of a million persons die of malignant diseases. "At all times there are about 700,000 persons under treatment for cancer. If these trends continue at their present rate, 40 million Americans now living will develop cancer, and 26 million of them will die of it." In reference to the national chemotherapy program, Dr. Heller said, "At present, more than 100 drugs are being evaluated in about 150 cooperating hospitals across the country. About 20 drugs, in standard use for temporary control of malignant disease, are used as reference compounds against which newer agents are compared." Dr. Heller explained that progress toward finding a cancer cure will be slow, and that "Physicians will probably be armed with a number of drugs, each of which will be active against a specific form of cancer."

Max Factor & Co. Declares 4 per cent Stock Dividend

The board of directors of Max Factor & Co. has declared a 4 per cent stock dividend on the Class A and Common stock, payable January 15, 1960, to stockholders of record December 15, 1959. Payment of this dividend will increase the present total of 2,115,500 shares outstanding to 2,200,120. The directors also declared quarterly cash dividends of 20 cents a share on the Class A and 2½ cents a share on the Common stock, both payable December 31 to stockholders of record December 15. It is anticipated that sales for 1959 will reach $50,000,000 compared with $45,071,419 in 1958.

Smith Kline & French to Purchase Norden Laboratories

Smith Kline & French Laboratories has entered into an agreement which would provide for the purchase of Norden Laboratories, Lincoln, Neb., manufacturer and distributor of veterinarian pharmaceuticals and biologicals, on the basis of three-and-one-half shares of SK&F stock for one share of Norden stock. Under the plan, the Philadelphia firm would acquire the assets and assume the liabilities of the Nebraska company. The acquisition is subject to approval by Norden stockholders. Norden Laboratories would continue as a Smith Kline & French subsidiary.

Rexall Announces Net Earnings Increase

Rexall Drug and Chemical Co. recorded a sharp increase in net earnings for the first three quarters of 1959, according to a recent announcement by Justin Dart, president.

Net earnings for the Rexall Drug and Chemical Company for the nine months ended September 30, 1959, amounted to $6,063,900, equivalent to $1.60 per share, after provision of $6,000,000 for Federal income tax, based on 3,799,436 shares, the average number of shares outstanding during the period. At September 30, 1959, there were 3,814,-331 shares of stock outstanding.

Total sales for the nine months ended September 30, 1959, were $163,178,058 against $130,250,740 for the like period of 1958. Net earnings and sales for the current period include those of Injection Molding Company for the nine months ended September 30, 1959.

Brave New World Arrives With "AromaRama"

Although New Yorkers will still have to wait a few years before enjoying the tactual sensations of the "feelies" of Aldous Huxley's novel "Brave New World," they now can smell selected scenes of the movie "Behind the Great Wall" which opened recently. One of the people responsible for the innovation was Mrs. Selma Weidenfeld of Rhodia, Inc. Though there would seem to be a great many limitations, we are still getting closer to Huxley's great concept and eagerly await that "seduction scene on the bearskin rug," at popular prices.

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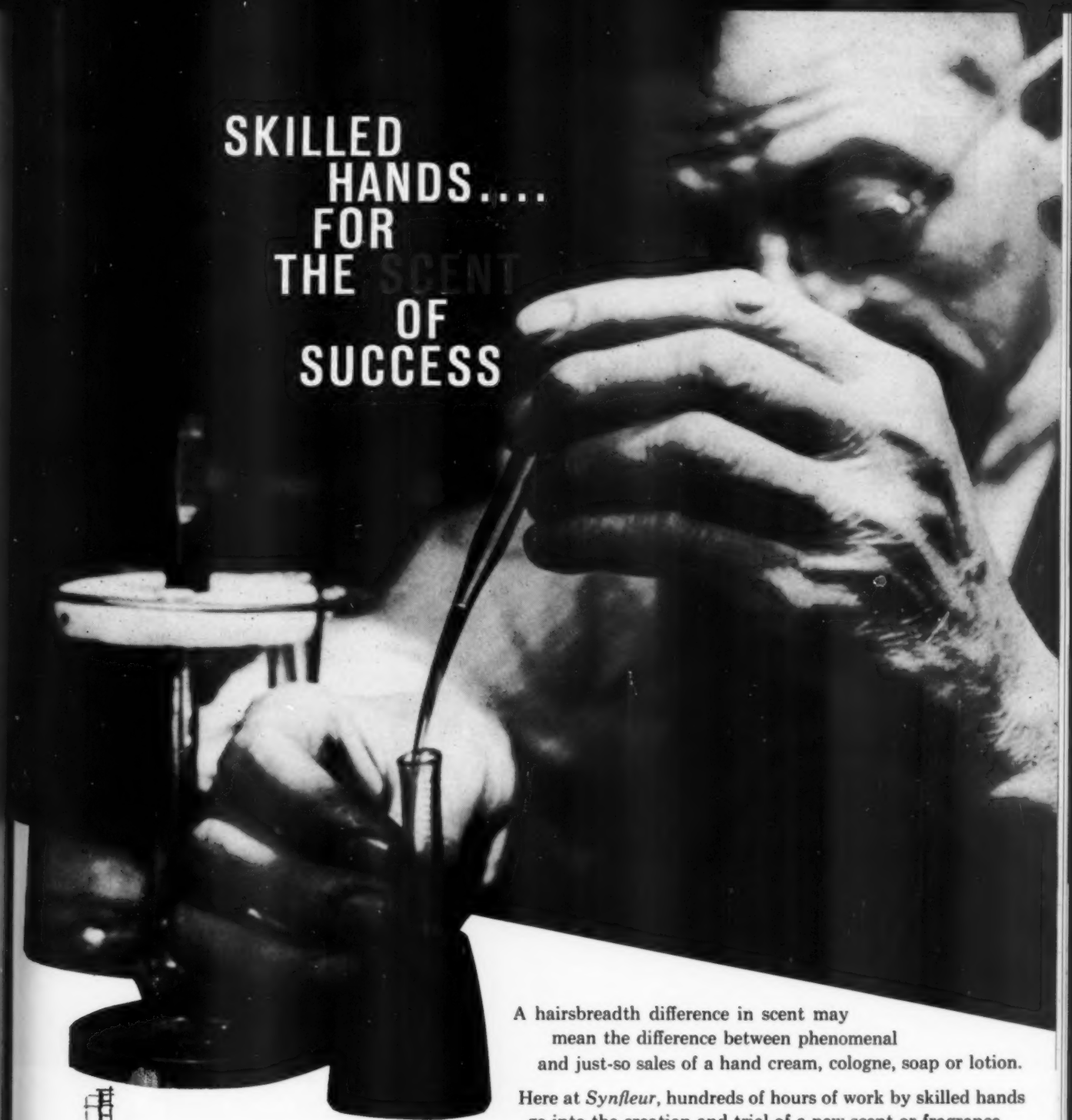

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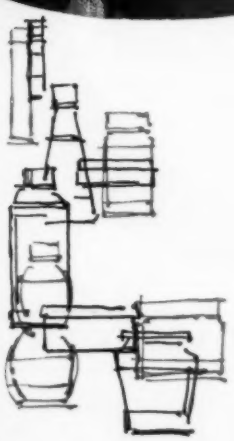

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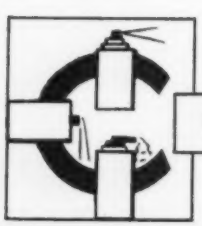

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☐1. **COSMETICS, SCIENCE AND TECHNOLOGY.** The editorial board of this encyclopedia cosmetic work is made up of H. D. Goulden, E. G. Klarmann, and Edward Sagarin, executive editor. It is in five parts: I, Scope of Cosmetics (80 pages); II, Toilet Preparations (812 pages containing 800 formulas); III, Manufacture and Technology (214 pages); IV, Physiological Considerations (92 pages); plus preface and complete index. The sixty-five experts who contributed, are a "who's who" of cosmetic chemists in the United States and Canada. 1433 pages. Illustrated. Price $27.50.

☐2. **PERFUMES AND THEIR PRODUCTION.** By E. S. Maurer. This is the first text of its kind in the English language to give a complete picture of the perfumer's training, and methods of working. In Part I the reader is offered a complete picture, not only of formulations, but of the entire scope and organization of the perfume industry. Part II is a systematized discussion of all the commonly used perfumery isolates and synthetics. Practical hints on utilization of most of these materials are included, together with notes on their specific applications, blending properties, and other functions. 313 pages. Price $6.50.

☐3. **PRESSURIZED PACKAGING (AEROSOLS).** By Alfred Herzka Jack Pickthall. Although technical problems occur with all types of packages, those which arise with pressurized packages are many and complex. This reference book, by two recognized authorities deals with propellants, containers, valves, filling methods, laboratory procedures, emulsified systems, and perfumes. There is a complete section containing more than 200 formulations, including foods, insecticides, cosmetics, paints, and numerous other products. 400 pages. Illustrated. Price $12.00.

☐4. **PERFUMERY SYNTHETICS AND ISOLATES.** By Paul A. Bedoukian. This carefully compiled volume meets the genuine need for authoritative data on perfumery synthetics. It embraces the history, chemistry, physical and chemical properties, manufacture, uses, and other pertinent data of the principal perfumery compounds; and covers the important perfumery synthetics. A complete index adds to the value of this important work. 488 pages. Price $10.25.

☐5. **THE HANDBOOK OF SOLVENTS.** By Leopold Scheflan and Morris Jacobs. The most useful work of its kind today. Part I covers theoretical aspects and practical attributes such as solvent action, solvent power, evaporation and evaporation rates. In Part II the physical constants of over 2700 liquid compounds are tabulated for easy comparison. 728 pages. Illustrated. Price $10.25.

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☐8. **HANDBOOK OF COSMETIC MATERIALS.** (Their Properties, Uses, and Toxic and Dermatologic Actions). By Leon Greenburg and David Lester. Contains alphabetical listing, with frequent cross references, of information on approximately 1,000 substances. For each compound gives: formula (including collateral names), properties, toxic action, dermatological action. Exhaustive bibliography. Essential for manufacturing chemists, cosmetic industry, dermatologists, allergists. 467 pages. Price $13.50.

☐9. **THE ESSENTIAL OILS.** By Ernest Guenther, with the collaboration of leading experts, this monumental six-volume work includes: Vol. I, Origin and Development of Essential Oils. 427 pages. Price $9.50. Vol. II, detailed data on several hundred constituents of essential oils. 852 pages. Price $13.50. Vol. III, discusses the oils of the plant families Rutaceae and Labiate. 777 pages. Price $13.50. Vol. IV, covers the widely used oils: citronella, lemongrass, bois de rose, cassia, and others. 752 pages. Price $13.50. Vol. V, takes up other oils of special interest to flavor, perfume and soap manufacturers: rose, ginger, cardamon, anise. 507 pages. Price $13.50. Vol. VI, completes the monographs on individual oils: wintergreen, sweet birch, juniper berries, and the numerous pine oils. 552 pages. Price $13.50.

☐10. **MANUAL FOR THE ESSENCE INDUSTRY.** By Erich Walter. Comprises modern methods, with formulas for making all kinds of essences for liquors and alcoholic drinks, fruit juices and jams, mineral waters, essences for fruits and other vegetables, essences for confectionery and pastry. Describes raw materials and laboratory practice. Discusses taste and the transfer to foods and beverages. 427 pages. Illustrated. Price $8.25.

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CMCS Meeting in Toronto

It was thoughtful of the CMCS to make available to me a set of meeting tickets as their guest. My grateful thanks to them.

Saw a number of old friends like Paul Sperry, Al Breeze, Harold Edmon, Bernie Sanders, Jack Quigg, Herb Kainik, Lloyd Speck, Al Allen, John Thompson, Bob Weidgenant and Bob Horsey, Ralph Legate, Precision Valve Company's man had aerosols in gin, Canadian, Scotch, etc. The Canadian wasn't bad.

Meeting attendance seemed down a little from last year.

Heard Dr. A. A. Aroutunian Canadian Ambassador from U. S. S. R., but will cover that in another item in this feature. Though I missed the first luncheon, I understand it was well attended.

The papers as a whole were large sandwiches with thin slices of meat in them. It was a bit disappointing to have two different sets of papers running at the same time. You had to miss one of them. I enjoyed the final color films on pyrethrum. It made Kenya seem like a very interesting spot to visit.

The meeting was held in the new section of the Royal York Hotel. They made this section for meetings such as this and a good job did they do of it. Acoustics excellent and quick evacuation of smoke laden air.

The Industrial Development of the U. S. S. R.

In an address given at lunch on November 3rd before the CMCS meeting, His Excellency Dr. A. A. Aroutunian, Ambassador from the Soviet Union to Canada threw quite a few startling figures at his audience. A reporter from the TORONTO GLOBE AND MAIL used a headline on the address which read, "Soviet Ambassador Tosses Verbal Bouquets," implying the recipient to be Canada. I heard few bouquets about anyone except the Soviet Union, although a couple of similes were made between the Soviet Union and other countries, including Canada. But be that as it may, one cannot brush aside the facts presented.

For example, by 1965, the Russians expect to have a per capita production and living standard that is the highest in Europe; and by 1970 to equal the U. S. A.

The scientific developments in Siberia are second only to Moscow. In graduating 100,000 engineers, the Soviets surpass the U. S. A. by almost three fold. In addition during the present seven year plan period, 2,300,000 specialists in electronics, chemical technology, radio and automation will be graduated. Next year they plan to have 4 million work-study students.

Though Russia plans to have the highest production output in the world by 1970, they say that "peaceful competition is a useful one and we call upon the others to take part in it . . . both sides will gain."

The average listeners reaction was one of disinterest and disbelief. But to my way of thinking there is plenty to be concerned about. Particularly the remarks made about Russian developments in Siberia. Their industry is moving eastward. In 1955 the Ural region produced more pig iron than all of Great Britain. The largest hydropower stations in the world are being built there. By 1965 the Eastern regions will produce almost one-half of the national output in steel, rolled metal and oil.

Russia is said to have only a small income tax and next year they plan to have none.

One could go on and on. Wonder what the U. S. A. and Canada *are* doing about it.

Mr. Sluys, France and the World

The Belgian firm of Sluys, through their house organ ALCHIMIST, is making some pretty strong allegations about the French Government departments, "Service de la Repression des Fraudes," which if true, are going to have international repercussions. Two pages are devoted to the story in PARFUMS, COSMETIQUE, SAVONS, the September issue. If the Sluys statements are untrue, not only has there been a flagrant breach of diplomatic etiquette, but a nation has been slandered.

Friend, Freddy Wells, who attended the Second International Congress on Essential Oils, says in his feature "Personnally Speaking" in SOAP, PERFUMERY AND COSMETICS for September that "I have listened carefully for repercussions, but have not yet heard the faintest echo." Needless to say, the subject was widely discussed by those attending.

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NOTES

It is interesting to note the results of a survey of 500 chemists on the use of academic degrees on technical papers. It seems those under 40 were less interested. . . . Swift and Co. have come up with a water soluble sodium stearate called Flexichem B apparently made from pretty good stearic acid because of its low iodine value (2 max.). . . Congratulations to Frank Chilson and his Chilsonator. I would have expected a somewhat different machine under this title which only shows that Frank has his serious side too. Is there any relationship between the machine and the story on "padding the payroll"? The one follows the other. Hope you sell millions, Frank.

Book Reviews

MODERN MANUFACTURING FORMULARY, by Emil J. Belanger. Chemical Publishing Co., Inc., New York 10, N. Y. 399 pages, 5½ x 8¾ inches, indexed. Price $10.00

The present volume is a follow-up on the author's earlier work, DRUG AND SPECIALTY FORMULAS in which he has been aided by his wife, a registered nurse.

Eight chapters cover foods, flavors, household formulas, cosmetics, medicinals, veterinary remedies, carbonated beverages and a variety of miscellaneous formulas. An appendix includes a discussion of the Food and Drug Act along with other useful data.

A number of inconsistencies in nomenclature (lanolin and lanoline for example) are found throughout.

The cosmetic formulas in particular show little practicality, originality and imagination. Thus a formula on page 132 calls for USP alcohol for making a scalp lotion.—M. G. deN.

PHYSICAL CHEMISTRY by S. C. Wallwork. Longmans, Green and Co., Inc., New York, N. Y. 310 pages, indexed. Price $4.75.

The author's purpose is to discuss under one cover, those topics in physical chemistry of use to students of biology and pharmacy. Eleven chapters comprise the book. Although the mathematical aspects have been reduced to a minimum, considerable knowledge of that subject will be required to understand the text.—M. G. deN.

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QUESTIONS & ANSWERS

1358: INCOMPATIBLE INGREDIENT

Q. *I would greatly appreciate your advice as to where I would be able to find any publications dealing with incompatible ingredients in perfumery. I understand there is a book on the subject of incompatibles by Cerebelaud, or some similar name, published in Paris. J. E., New York.*

A. We regret that we do not know of a publication which deals with the incompatibilities of perfumery materials. There is a series of four volumes written by Cerebelaud available from the AMERICAN PERFUMER Book Department. These are written in French and their approximate price is $12 to $15 per volume. The volumes are rather jumbled in content so that you would probably be forced to buy at least the first three volumes. There is a volume by E. S. Maurer entitled, "Perfumes and Their Production," published by the United Trade Press in England which can be purchased through the book department of the AMERICAN PERFUMER. Other than this, you will undoubtedly have to search, particularly the European literature and probably mostly the French literature for bits of information on the subject which you have in mind.

1359: HAIR WAVE SET

Q. *We have made a hair wave set which incorporates Carbopol 934 and are bottling it in a semi-liquid form. We would like to make this item in a paste or gel form and incorporate something into it like a permanent wave solution that would give the user a wave set and also a mild permanent or something to that effect to give the hair set a more lasting quality, but that would have no bad effect on the hair even though it would be used often. We would also like to know if it is possible to add some kind of tint to this product to enable us to market it in different colors so that the user could tint the hair at the same time it is being set. V. R. A., Calif.*

A. The only thing that we know which might be added to a Carbopol mucilage and which would have an effect on curling hair would be possibly an alkaline solution of a sulfite such as ammonium sulfite or sodium sulfite. This would require no neutralizer. A considerable amount of experimental work would be required on such a concentration. As you know, sulfites have always left a characteristic odor on hair and therefore, rinses have been used to overcome this odor. In regard to tinting of hair, this is a bailiwick all in itself. You would have to use acid stable colors which are beautifully described in Florence Wall's chapter on Hair Coloring in Sagarin's book, COSMETICS: SCIENCE AND TECHNOLOGY. If you do not have a copy of this, you can get it from the book department of the AMERICAN PERFUMER for $25.00.

1360: AMMONIATED MERCURY

Q. *We would like to know what material can be used as a substitute for ammoniated mercury for cosmetic preparations. L. R. D., Chile*

A. To our knowledge there is no substitute for ammoniated mercury in a cosmetic preparation, presumably used as a bleaching ingredient. Any other substances that have been mentioned in the literature for this purpose do not have the margin of safety that is found in ammoniated mercury.

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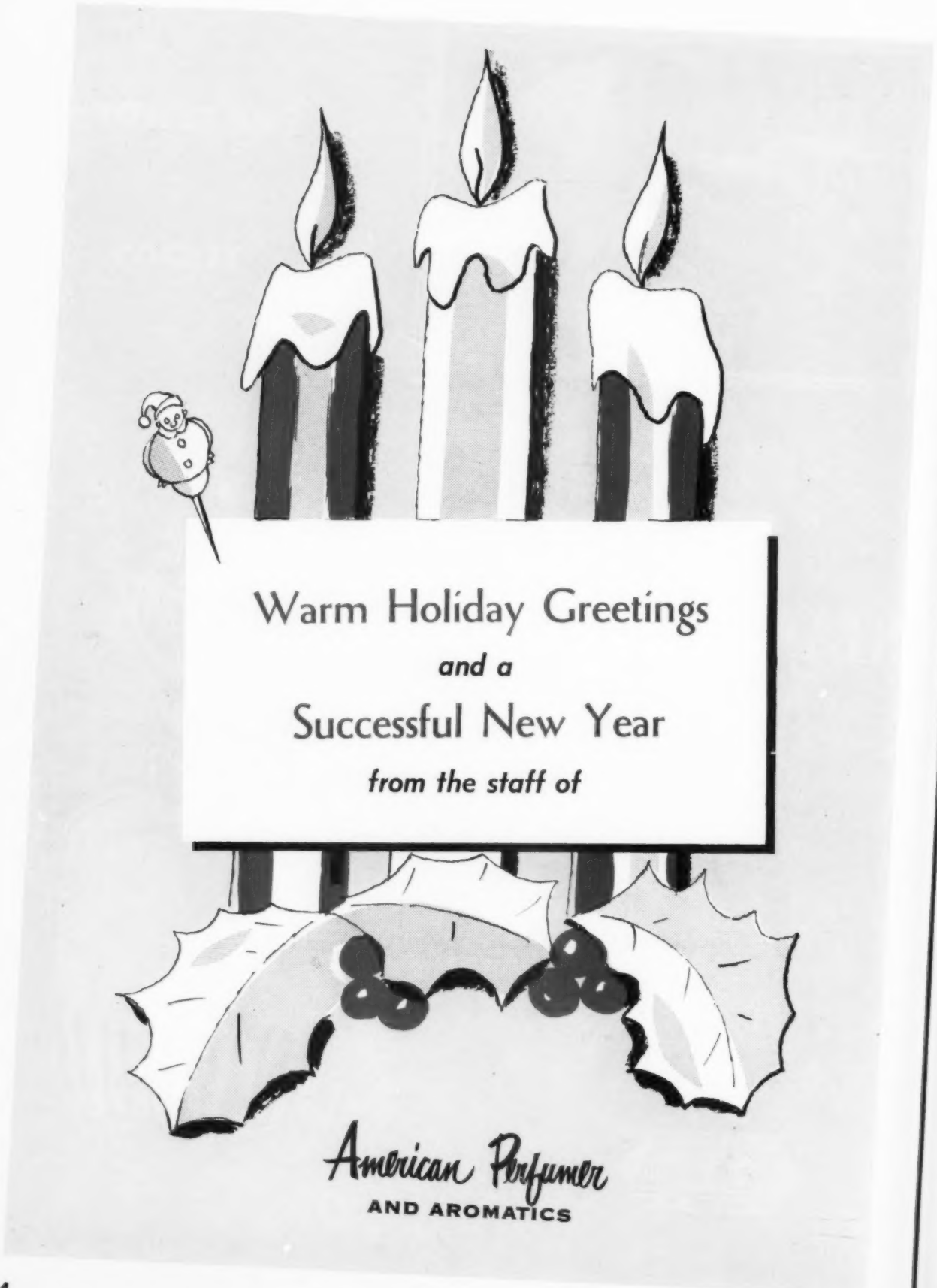
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HONEY

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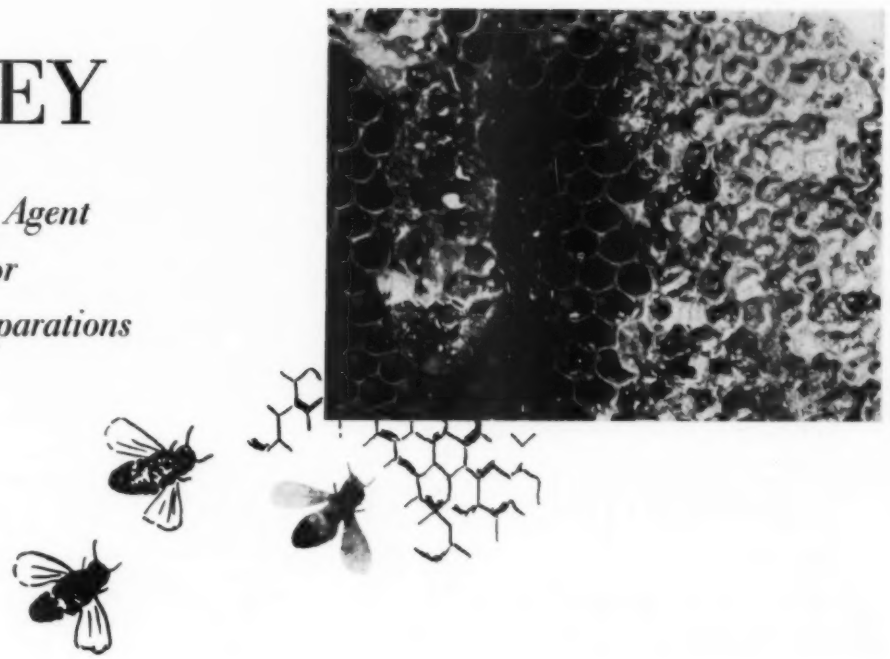

DRS. CATHERINE N. SIDERI, ARTHUR OSOL, NATHAN RUBIN AND ALFONSO R. GENNARO

HONEY HAS LONG BEEN USED in the formulation of medicinal preparations, but little information regarding its suitability as a vehicle is available. The acquisition of such data was the object of a recently completed, two-year research program at the Philadelphia College of Pharmacy and Science, under a contract with the United States Department of Agriculture, supervised by the Eastern Utilization Research and Development Division of the Agricultural Research Service, and authorized by the Research and Marketing Act of 1946.

Twenty-one different types of medicinal preparations were investigated to determine if honey may replace all or part of the sugar syrup and/or glycerin normally used as vehicles. The problems of stability of the active constituent(s) in preparations containing honey, along with possible improvement of palatability by the pleasant natural flavor of honey, were of prime consideration. In some instances honey imparted both exceptional taste and high stability; in others it was of little or no utility as a vehicle. A summary of the principal findings follows.**

Stability of Honey Formulations

Honey is naturally acid in reaction, having a pH of about 3.7. Raising the pH tends to change both the color and aroma, the honey becoming darker and acquiring an unpleasant aroma, which is especially pronounced above pH 7. It is not desirable, therefore, to incorporate honey in any preparation which is alkaline.

The effect of temperature was also investigated, sample preparations being stored at room temperature, at 37° C. (98.6° F.), and at 50° C. (122° F.). At 50° C. honey containing 10% added water (the usual concentration used in this study) became very dark, at times developing a black precipitate. The unfavorable effect of elevated temperature is therefore quite apparent.

Since good pharmaceutical practice requires solutions to have a high degree of clarity, it is advantageous to use the commercial variety of honey designated as "heat-processed and filtered." The desirability of employing honey which does not require filtration to achieve clarity is readily apparent when this cumbersome operation on such a viscous fluid does have to be performed. It should be noted that even the clearest honeys show the turbidity characteristic of colloidal solutions. In preparing formulations with clear honey the general procedure usually involves only mixing a filtered aqueous solution of the water-soluble medicinal agents with the honey. For insoluble materials a suspending technique is utilized (see the Sulfonamide Suspension formulation).

Ferrous Sulfate Formulation

Honey proved to be an excellent vehicle for ferrous sulfate. A formulation prepared as specified for U.S.P. Ferrous Sulfate Syrup, usually made in sugar syrup

* Philadelphia College of Pharmacy and Science, Philadelphia, Pa. School of Chemistry.

**(A complete report of the findings of this investigation, including quality specifications, may be found in the *American Journal of Pharmacy*, Volume 131, July, 1959).

flavored with peppermint, is given below.

Ferrous Sulfate (hydrous)	40	Gm.
Citric Acid (hydrous)	2.1	Gm.
Water	210	Gm.
Honey*	1150	Gm.

This solution was extremely palatable, with practically no evidence of the astringency characteristic of many preparations containing iron.

Sulfonamide Suspension

For preparing suspensions, of the type of U.S.P. Oral Trisulfapyrimidine Suspension, honey is an ideal vehicle component. Not only may chemically stable suspensions be prepared, but they also show the desirable characteristics of slow settling, ease of uniform redispersion, and palatability. The following formulation ranked first in a taste preference "panel" of 25 students.

Sulfadiazine (Calcomites®)	42	Gm.
Sulfamerizine (Calcomites®)	42	Gm.
Sulfamethazine (Calcomites®)	42	Gm.
Sodium Citrate	6.7	Gm.
Acacia	6.7	Gm.
Methylparaben	0.5	Gm.
Propylparaben	0.11	Gm.
Alcohol	17	Gm.
Glycerin	170	Gm.
Honey	950	Gm.
Water, sufficient to make a total of	1350	Gm.

*(In order to know the exact composition, most of our preparations were formulated by weight; this formula yields about one liter of solution).

This formula yields about one liter of suspension, and was prepared as follows: (1) The acacia was wetted with some water, the remainder of which was used to dissolve the sodium citrate; (2) the prabens were dissolved in alcohol; (3) the sulfonamides were mixed with the glycerin and honey; (4) to the sulfonamide suspension was added the parabens solutions; (5) to the mixture obtained in (4) the acacia and sodium citrate solutions were added, alternately; (6) the product was passed through a colloid mill. In place of the parabens 0.5% (w/v) of sorbic acid or its equivalent of potassium sorbate may be used as a preservative.

Cough Preparations

Honey has long been used in Europe as an ingredient for treatment of cough. Its viscosity makes it well suited for this purpose. Clinical use of a product of the following formulation indicated good antitussive action; the taste is excellent.

Dihydrocodeinone Bitartrate	0.32	Gm.
Pyrilamine Maleate	2.4	Gm.
Potassium Guaiacolsulfonate	32	Gm.
Sodium Citrate	16	Gm.
Citric Acid	16	Gm.
Sorbic Acid	0.5	Gm.
Water	160	Gm.
Honey	1150	Gm.

The solid ingredients were dissolved in about 140 Gm. of water with warming, the solution filtered and mixed with the honey. This formation yields about one liter of solution. Occasionally filtration, under pressure and using a filter aid, is necessary.

Terpin Hydrate Formulations

The following variant of the N.F. Terpin Hydrate Elixir, prepared in the same manner as the official product, was found to be of good flavor.

Terpin Hydrate	16.9	Gm.
Sweet Orange Peel Tincture	20	ml.
Alcohol	425	ml.
Glycerin	200	ml.
Honey	400	ml.
Water, sufficient to make	1000	ml.

At times a fine precipitate formed after standing for several weeks, which was easily removed by filtration by virtue of the viscosity of this preparation being considerably less than that of the honey formations previously described.

Aspirin Preparation

Suspensions of aspirin were very palatable, but not very stable. In two days 5% hydrolysis occurred, and in five days this had increased to 12%. Nevertheless, honey dispersions of aspirin may be well suited for administration to children if they are used within a day or two of compounding.

Other Preparations

Honey solutions of the more common water soluble vitamins were also studied. Riboflavin (Vitamin B_2), used in the form of sodium riboflavin-5'-phosphate, proved to be the most stable of the vitamins, provided the solution is stored in amber glass bottles. Thiamine (Vitamin B_1) is not as stable in honey as it is in some other vehicles, though in combination with riboflavin its stability is considerably improved. Ascorbic acid (Vitamin C) is less stable in honey than in simple syrup. Cyanocobalamin (Vitamin B_{12}) deteriorates very rapidly in consequence of the high carbohydrate content of honey.

Preservation Against Microorganisms

Honey diluted with water is subject to deterioration by microbiological growth. Part of this investigation had to do with the study of various preservatives which would inhibit such deterioration. This study indicated sorbic acid in 0.05% (w/v) concentration (or the equivalent concentration of the more soluble potassium sorbate) to be the most effective preservative, and it appears advisable to incorporate it in any preparation containing honey and water.

Quality Specifications

While standards for honey are provided in the monograph of the *National Formulary*, these standards will not insure constancy of different lots of honey. Uniformity is essential for different batches of product in which honey is an ingredient. Quality specifications must be quite restrictive for honey intended for use in medicinals. Briefly, honey for medicinal formulations should be of "U. S. Choice" or "U. S. Fancy" grade, contain not more than 18.6% moisture by weight, contain no artificial honey, and not be darker than light amber when graded by U.S.D.A. color standards.

Many floral types of honey are commercially available, the choice at the discretion of the manufacturer of the product containing the honey. (Clover honey was used in most of the formulations recorded in this paper). Regardless of floral type, the honey should meet all of the proposed requirements.

Acknowledgment

The authors are appreciative of the helpful suggestions and other aid of Dr. Jonathan W. White, Jr., of the Eastern Utilization Research and Development Division of the Agricultural Research Service. ■

The Commercial Development of an Aerosol Product

WINSTON H. REED, Ph.D.

Reed Research Corp., Shelton, Connecticut

"The Commercial Development of an Aerosol Product" might be discussed in several ways. The scope of this paper will be limited to three main considerations:

(1) Selection
(2) Pricing
(3) Marketing

the latter to include distribution and promotion.

In the many talks and papers given on aerosols at the various trade associations and conventions, it is most common to find the spectacular story of the successful products extolled. Many excellent papers have also been given covering the technical aspects of the industry in describing how to handle many of the production and laboratory problems that arise.

The drama of the swift growth of this business and the almost but not quite universal recognition of the value of mutual exchange of information on technical problems most naturally merited the emphasis they received. Emphasis has been on histories of successful products. Not so well publicized among the stories of aerosol products are some records, equally spectacular in their own way, which have been swept under many a corporate rug for obvious reasons.

It is unfortunate that some of the sad mistakes of the industry have not been more fully documented since taken together with the case histories of successful products they provide a guide to the newcomer in the field on the selection of products and improved paths for their commercial development. Most of the stories in the trade on poor products have been passed along verbally. Such records are easily subject to distortion or are lost, especially where those most familiar with the story have moved into a different industry.

We have tried to keep in our files at Reed Research, a record of interesting examples of both good products and bad. It is valuable to note that in many cases with the poor ones, the real trouble was insufficient attention to common sense in the original selection of the product. Other troubles were due to insufficient product development from a technical standpoint or to promotion, sales and distribution policies.

The C. S. M. A. have provided an excellent check-list for reviewing the technical and production development of an aerosol product. It is equally important to set up a check-list for the selection of products for commercial development.

Product Selection

Some of the major points to be considered are as follows:

1. Is it worth while?
2. Frequency of use
3. Potential market volume
4. Competitive situation
5. Duration of sales season
6. State of product development
7. Patentability
8. Ease of production
9. Consumer education required
10. Profit margin

At the start of a commercial development it is diffi-

*Presented at the Canadian Manufacturers of Chemical Specialties Meeting, Toronto, Canada, November 4, 1959

cult to assess quantitatively the points just mentioned. An analogous situation is the list of points that have to be considered and weighed in the selection of a new location for chemical plant. Such items as labor market, transportation costs, availability of raw materials and other items have to be evaluated on a basis of fact and experienced judgment. It is possible to arbitrarially assign numerical points to each of the important factors in plant location. One such scheme was suggested by McBride (1).

A similar rating point system can be set up for aerosol product selection. The ratings can be made by a joint decision of sales, advertising, research production and management. Each company will have its own scale based on its product types and its marketing pattern. The market story on established products can be used to help correct and guide the weighing figures used, then new products can be evaluated using the scale one has established.

Let us consider the points listed in more detail.

1. Is it worth while?

This is one of the most essential points in the selection of aerosol packing for a product. Does it really do something:

Better; as with insecticides
Quicker; as with paints
Easier; as with hair lacquers
New; as with shave cream, starch and Christmas Snow.

Many products that have been considered for use in aerosols are already being sold and distributed in a perfectly adequate and in some cases superior package. Push button dispensing would be only a gimmick to add variety to the package types. Although advertising dollars may be poured in to get sales initially, if this pressure packaging technique does not offer a *real advantage*, or where with some products it is really a disadvantage, it would seem an ill-advised choice. Happily, there are so many areas where pressure packaging does a worth while job that the marketer has plenty of room for good selections.

2. Frequency of Use

This is a point of vital consideration. The ideal product would be one that every member of the family could use every day—shoe polish is an example of this type. The market has been entered with several types of products. Initially these were clear plastic sprays which did not have a good adhesion to leather or the flexibility so essential to a shoe coating. Better products have been appearing and shoe polish has been given sufficient promotion and should be capable of substantial volume.

It is strange that frequency of use has been so often ignored as a product selection point by many companies. The neglect has been fatal particularly where they have attempted to launch a single aerosol. Several products come to mind but a waterproofer would be one example. The average housewife is not in the habit of waterproofing family coats or snow suits and even if she could be prevailed upon to do so, would still not use such an item very often.

There have been a few successful items with a low frequency of use, but these have had exceptional novelty and natural public appeal to sustain them. Christmas Snow is the leading example.

3. Potential Market Volume

If the pressurized package is a new form of an existing product as with paints, then some market information may be available on the sales of touch-up paints.

(1) McBride, R. S., Chem. Met. Engr. 29, 746 (1923).

Frequency of use is a vital consideration

One can then make some guesses as to the fraction of this market that can be captured by a push button package. Where the product has not existing market counterpart, it may be very difficult to assess volume until a test marketing program has been made. Sample size might run from ten to a hundred thousand units and should be carried out with sufficient promotion to give worthwhile results. The Freon Products Division of duPont have prepared a very excellent book titled "Markets for Aerosol Products." This publication contains a wealth of useful data.

4. Competition

The market record indicates aerosol products have been doing very well indeed in competition with the same type of product in non-aerosol form.

Where the competition is another well entrenched aerosol product, that does as good a job, the going may not be so easy. Aerosol room deodorants and insecticides, for example, have been established for a sufficient length of time so that the production and technical problems are minor and there are on the market a multiplicity of brands. Some companies in an urge to diversify, have moved into these areas with a new product line and a strong advertising program. Where the product was related to their main business they may have done a good job with it. In many cases where the distribution pattern is different and the product was quite foreign to their know-how, they have sustained volume only by advertising expenditures which they may never get back.

5. Duration of Sales Season

This point is particularly one that has to be weighed for each company according to its present practice and desires. While the product that sells equally well all year long is admittedly ideal, in some cases you may badly need at the moment, aerosol products that will level out the production and sales patterns of existing highly seasonal items. One of the strong advantages of a custom filler to a company with a few seasonal products is that in handling many product types he can balance out

production to maintain lower costs. Where a manufacturer already has on the market seasonal products such as insecticides, he may wish to even out sales by adding to his line household cleaners, mothproofers, or even a cosmetic line which tends to develop its maximum in the Christmas selling season. But never forget in the product selection to look for some items such as shoe polish, shaving cream and hair lacquer which are quite steady and non-seasonal in sales.

6. The State of Product Technical Development

How many months, man hours and dollars are going to be required to produce the desired item? While a "me too" item such as a room deodorant with a slightly different odor might require little or no development, it obviously requires more promotion in terms of its poor competitive situation. If the laboratory has under development something that is quite unique, and which is capable of a good total rating on the points considered in this list, financial support and strong encouragement by management is well justified. While it is common practice for many companies to do all or most of their own research team. Worthwhile developments can be nize that creativity is not the exclusive domain of its own research team. Worthwhile developments can be purchased or licensed from outside sources.

7. Patentability

A development can be given a rating based upon a patent where one has been obtained or upon the probability of one where it is under application. If the product developed is of a type sufficiently clear cut to offer a patent advantage, then application should be made. Where a patent has been obtained and is to be made available for license, it has been found that too high a royalty is a great stimulus to research activities by other companies aimed at developing other ways of obtaining the same objective. A reasonable royalty bearing some relation to both the expenditure required in the development and the creativity, or the novelty involved, may be the best policy.

8. Ease of Production

The technology of aerosol production is sufficiently well established now so that the production problems of most items can be assessed by one experienced in aerosol production. If a company is new to this industry even though they are experienced in other phases of packaging, they should seek the advice of an aerosol filler or a consultant. If a radically new product was being considered which could well contain several production "bugs", then a pilot operation is quite important.

9. Consumer Education Required

Where the product is standard, like the room deodorant, there is no problem, but if the product introduces a new and unfamiliar technique, the costs in demonstration, either direct, TV, or through other consumer media, have to be considered and the rating factor set accordingly.

10. Profit Margin

The previous factors mentioned as forming the basis for a product rating system have a common characteristic. They are to a major extent a property of the product itself. You can't do much about them at the start.

Profits are different. They are something you hope you can influence. After our long look at product selection, let us take a quick glimpse at the last two topics we were to consider, namely pricing and marketing. Both influence the profit margin and the rating system is not complete until the pricing structure has been set and the marketing costs estimated.

Pricing

This is the heart of the business. What are you selling—the components, cans, valves, propellants and liquids? This is only a part of the picture. In with the factory costs there should be considered such factors as know-how, novelty, appearance, quality, marketing, the financial backing and media support. Under any system of distribution money has to be paid to get information concerning the product out to the customer. We recognize that the new car, the corn flakes, the bottle of beer and the aerosol product contain in their price a fraction of the ticket for news, music, shows, education and information. The total package, visibly or not, consists of components, plus usefulness, plus information, plus services. Our price has to consider these elements as well as the competitive situation and our basic production costs. One caution, with aerosols, is not necessarily competing with a non-aerosol product, since the superiority in terms of usefulness and time-saving may far outweigh other considerations. Some aerosol products have failed commercially because they were priced too low. The producers felt they were competing with related low cost items and did not include in the pricing, the cost required to tell the story and move the merchandise.

Marketing

Marketing and promotion of aerosols best be left to the experts. Let's do that. It's up to your sales manager to get distribution and to your ad agency to move it off the shelves. You should have some good tight guesstimates of the costs involved and set your pricing accordingly.

Aerosol products are wonderful we're all agreed. They are easily classified in respect to their commercial development histories under the headings: peaches, apples (less glamorous) and lemons. If we give careful attention to the selection of products that offer a real advantage, have a high frequency of use, and then price these fairly, allowing an adequate margin for telling our story, then one can expect that the aerosol industry will continue to produce sound profits and few lemons. ■

American Perfumer visits...

CERAGRAPHIC

THAT VITAL TRANSITION from display to dressing table, the journey upon which the success or failure of a cosmetics or toiletries line depends, is placing an ever increasing responsibility upon the prestige look at point of purchase. The pressures of highly competitive packaging force a continual search for new methods and materials that will produce the most effective integration of container shape, label design and color, into a high style packaging unit, easy to hold, pleasing to the eye, and commanding attention on the display and on the dressing table.

This search for the ultimate in cosmetic packaging has led a vast number of cosmetics and toiletries lines to the modern applied-color labeling plant of Ceragraphic, Inc. in Hackensack, N.J. Here, in the company of George Beaton, general manager, we walk along the rows of production lines and recognize a veritable social register of brand names and colors, freshly applied, awaiting the firing cycle.

Applied-color labeling is the fired-on, vitreous color decoration that is applied to glass, plastic, ceramic or metal containers by a screen stencil process. The silk-

Original art is prepared in the Ceragraphic art department

Photographing the design

Ceragraphic's first success in the toiletries line came with their help in designing and printing the well-known Sportsman label.

screen, by which the method is best known, is rapidly being replaced by mesh of stainless steel, nylon and perlon, depending upon particular production requirements. This mesh is stretched on a wooden frame and impregnated with a photosensitive emulsion. The flat design is positioned on this screen which is next exposed and developed, leaving open mesh in exact reproduction of the design. The screen is then mounted in a semi-automatic machine which moves it in a straight line over the container which is being rolled and printed. Directly over the axis of the container, a rubber squeegee forces the glass paint through the open-mesh areas of the screen. The glass-paint design which has been screened onto the container, is a mixture containing oils or waxes which act as temporary vehicles for the pigments. When the containers are placed in the "lehr" or furnace, these organic materials burn off at a temperature below 900 deg. F. The remaining powder coalesces at a temperature from 1000 to 1500 deg. F., into a glossy, impervious color, permanently fused to the glass.

Continued ►

CERAGRAPHIC

Continuous experimentation has produced a wide range of special effects

The design is photographed on a sensitized screen

Before the screen is cleared for production, a number of samples are run to check design fidelity and color

Utilizing a wide range of colors, and special techniques of application and firing, Ceragraphic produces unique combinations of frosts, bright golds, satin golds, reliefs, transparents, spray coatings and a variety of special effects which simulate marble, tortoise shell etc. Many of the techniques and paints in use have been developed by Anthony Velonis, technical director of Ceragraphic. With the use of a thermoplastic or hot medium which is set instantaneously by the room temperature of the glass, it is now possible to print a number of colors in rapid succession. The latest development is called One Color Multitone Printing, which gives a halftone effect and makes possible the reproduction of scratchboard artwork or even engravings.

While One Color Multitone Printing is the most recent development, it was primarily silkscreen reproductions and prints that brought Creative Printmakers (predecessor of Ceragraphic) their first success. The founders, H. J. Warsager, president, and Anthony Velonis, technical director, both had backgrounds in commercial and fine arts.

Diversification of the silk-screen medium led to its use for displays, Christmas cards, plastics and decorations on bottles. The first success in the cosmetics and toiletries line came with their help in designing and printing the Sportsman label for this well-known line of men's toiletries. This was the beginning of a trend that has developed with ever increasing acceleration in the years since the war.

Principal factors in the increased popularity of the applied-color label, are the ever multiplying range of decorative effects it offers, and the desirable integration of label and container, a compliment to the consumer's good taste. ■

Abstracts of Papers presented before the

Scientific Section of the American Pharmaceutical Association*

IN VITRO ANTACID STUDIES I. ALUMINUM HYDROXIDE-MAGNESIUM CARBONATE DRIED GELS. NEW GASTRIC ANTACIDS—PREPARATION AND PROPERTIES. Stewart M. Beekman. Reheis Company, Inc., Berkeley Heights, N.J.

The preparation and properties of two new Aluminum Hydroxide-Magnesium Carbonate Dried Gels is described. *In vitro* antacid evaluation tests indicate that both exhibit prompt and prolonged activity in the optimum pH range of 3.0 to 5.0 An automated gastronometer or "artificial stomach" is described. The apparatus was designed by the author to evaluate antacids with a high degree of reproducibility. The method is based on an *in vitro* techinque described by Holbert, Noble, and Grote; Johnson and Duncan; and Murphy. Included in the evaluation is data obtained on most antacid chemicals as well as many commercial antacids in liquid and tablet form.

IN VITRO ANTACID STUDIES II. ALUMINUM HYDROXIDE-PROTEIN DRIED GELS. NEW GASTRIC ANTACIDS—PREPARATION AND PROPERTIES. Stewart M. Beekman and *Carl H. Vogel.* Reheis Company, Inc. Berkeley Heights, N.J.

Several new antacids are described. Each is a combination of aluminum hydroxide and protein in dry form. The *in vitro technique* (based on the procedure of Holbert, Noble, and Grote) described in the preceeding paper is used to evaluate the antacid properties of the new products. In addition to the promptness which they exhibit in raising the pH of gastric juice to the optimum level of about 4, the compositions exhibit very prolonged action in the optimum pH range of 3.0 to 5.0. All are palatable and free of chalky taste. The compositions include combinations of aluminum hydroxide with non fat milk, milk protein concentrate, gelatin, lactalbumin, egg albumin, soya protein, and casein.

REACTIVITY OF BISULFITE WITH A NUMBER OF PHARMACEUTICALS. Takeru Higuchi and *Louis C. Schroeter.* University of Wisconsin, School of Pharmacy, Madison, Wis.

Although bisulfite is presently widely employed as an antioxidant in preparations containing drugs which readily autoxidize; the antioxidant itself, according to the study described, undergoes reaction with a number of these compounds. Results of the present investigation show that sympathomimetic and other drugs which are para or ortho hydroxybenzyl alcohol derivatives react with bisulfite to yield corresponding sulfonic acid derivatives. Both amino and nitrobenzyl alcohols similarly conjugated (e.g. chloramphenicol) also appear to be subject to similar reactions. The resulting sulfonic acids seem to possess little or no activity.

ADSORPTION OF SELECTED ANIONIC SURFACE ACTIVE AGENTS BY SOME PHARMACEUTICAL POWDERS. A. P. Lemberger, L. W. Busse and *G. A. Groves.* School of Pharmacy, University of Wisconsin, Madison, Wis.

The adsorption of three types of anionic surface active agents on five common pharmaceutical powders has been measured. The effect of electrolytes on the adsorption pattern has been determined. The data obtained are found to obey the Langmuir equation. Adsorption of the anionic surface active agents varies widely with the powders investigated and does not appear to be solely related to the surface area of the powder. Addition of electrolyte was found to cause a change in the adsorption pattern in most instances.

INFLUENCE OF HYDROPHIL-LIPOPHIL BALANCE ON OINTMENT BASES. *John William Rhyne,* William J. Payne, and Charles W. Hartman. School of Pharmacy, University of Georgia, Athens, Georgia.

The properties of surface active agents have been classified according to their hydrophilic or lipophilic tendencies in the Hydrophil-Lipophil Balance (HLB) system for purposes of defining readily the optimum surface active agent for a particular emulsion.

The inclusion of surface active agents in ointment bases to improve release and pharmaceutical elegance has made it desirable to investigate the influence of the HLB values of the various surface active agents upon the release and effect of medicinals of various chemical characteristics from ointment bases, with an idea toward determining the optimum HLB value for a specific medicament.

(Continued on page 36)

*Cincinnati, Ohio, August, 1959

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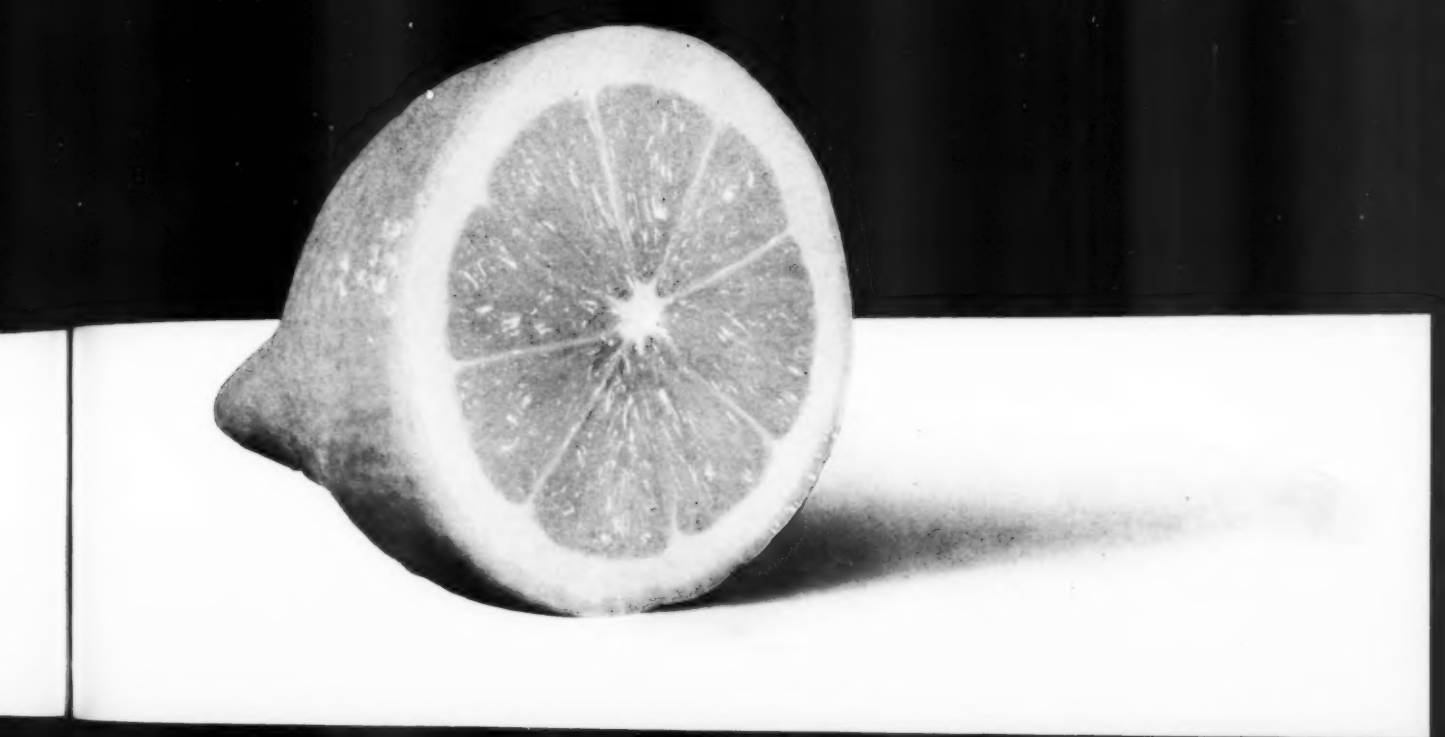

Note further details and suggestions from our data sheet.

By use of microbiological assay and comparing zones of inhibition on serum agar plates, it was found that some influence on drug release might be attributed to the HLB value of the ointment base. Medicaments of different solubilities were used, and bases with varying consistencies were investigated to determine the effect of these properties.

THE EFFECT OF VARIOUS OINTMENT BASES ON THE PERCUTANEOUS ABSORPTION OF SALICYLATES THROUGH THE INTACT RABBIT SKIN. II. M.E. Stolar, *M. Barr* and G.V. Rossi. Philadelphia College of Pharmacy and Science, Philadelphia, Pa.

The effect of the inclusion of several concentrations of surface active agents in four different types of ointment bases on the percutaneous absorption of salicylic acid and sodium salicylate was determined. Hydrophilic Ointment, Petrolatum, Hydrophilic Petrolatum containing water, and Polyethylene Glycol Ointment were modified either by varying the concentration of surface active agent present in the official formula, or by substituting a different surfactant, or by adding varying amounts of surface active agents to those bases in which none was originally present. Sorbitan monostearate, polyoxyethylene sorbitan monostearate and polyoxyl stearate were studied as representative of lipophilic and hydrophilic non-ionic surface active agents. The results indicate a correlation between percutaneous absorption, and the degree of interaction of the polyoxyethylene groups present in the hydrophilic surface active agents with the salisylates.

A NEW METHOD OF MANUFACTURE OF TABLET GRANULATIONS. PART I. P. A. Tuerck, *E. L. Walters*, E. D. Carkhuff. Research Laboratories of The Wm. S. Merrell Company, Cincinnati, Ohio.

A method of manufacture has been developed in our laboratories which reduces to a minimum the normal granulating operations, amount of manufacturing time, and which enables the use of inexpensive diluents. Granulations produced by this new method have been divided into two broad classifications; low milligram potency ingredients where a major portion of the tablets may be diluent and high milligram potency ingredients where active ingredients constitute a major portion of the tablet. This paper is concerned with a discussion of the low milligram potency formulations. The method involves the use of standard coating pans in which granulations are prepared by spraying with water and subsequent drying in the pan. The method has advantages of decreasing material costs, reducing manufacturing time and eliminating a number of processing steps resulting in economies in labor and space.

THE STABILITY OF VITAMIN A ESTERS IN THE PRESENCE OF FATTY ACIDS. *Albert J. Forlano* and Loyd E. Harris. The Ohio State University, College of Pharmacy, Columbus, Ohio.

Vitamin A ester degradation was studied in isopropyl alcohol, isopropyl alcohol and water, cyclohexane, and in these solvents containing members of the acetic acid series of fatty acids. The results indicate that (a) the principal methods of degradation are oxidation and elimination, (b) water increases the rates of elimination, (c) fatty acids decrease the rates of elimination and (d) oxidation is the main decomposition product in hydrocarbon solvents. The stabilizing mechanism of the fatty acids was studied by examining the effects of fatty acids, water, and isopropyl alcohol on anhydrovitamin A.

HYDROGEN PEROXIDE FORMATION BY ZINC OXIDE IN OINTMENTS. *Hector A. Lozada* and Earl P. Guth. College of Pharmacy, The Ohio State University.

The catalytic formation of hydrogen peroxide in ointments containing zinc oxide when irradiated with ultra violet light is noted by direct analysis and by the oxidation of cholesterol when it is present.

THE EFFECT OF SURFACTANTS ON DRUG STABILITY. *S. Riegelman*, University of California School of Pharmacy, Medical Center, San Francisco, Calif.

The effect of surfactants on the rate of hydrolysis of esters has been studied in a homologous series of stable nonionic surfactants, and with several cationic and anionic surfactants.

Micellular solubilized drugs are in an environment unique to the position of the drug within the micelle and relatively independent of the surrounding medium.

Using alkali-stable nonionic surfactants, it was found that the hydrolysis rate of esters varies with the length of the polyoxyethylene chain and with drug concentration. Marked reduction and acceleration in the hydrolysis rate can be achieved within a given homologous series. Anionics appear to stabilize the compounds to alkali hydrolysis, cationics to acid hydrolysis.

It is postulated that the charge on the surface of the micelle and the depth of penetration of the drug within the micelle are the critical factors controlling the hydrolysis rate under standardized conditions.

INTERACTION OF PRESERVATIVES WITH MACROMOLECULES. IV. BINDING OF QUATERNARY AMMONIUM COMPOUNDS BY NONIONIC AGENTS. P. P. DeLuca and *H. B. Kostenbauder*. Temple University, School of Pharmacy, Philadelphia, Pa.

Quantitative estimates for the degrees of association of quaternary ammonium compounds such as cetylpridinium chloride and benzalkonium chloride with nonionic agents such as Tween 80 were obtained by means of an equilibrium dialysis method utilizing a semipermeable nylon membrane. In the presence of 1% Tween 80 approximately 95% of the total cetylpyridinium chloride present is bound to the Tween. Microbiological data indicate that increased concentrations of quaternary ammonium compounds required for inhibition of growth in the presence of the nonionic agents are in agreement with predictions based on a knowledge of the magnitude of the binding occurring.

PRESSURIZED PHARMACEUTICAL AEROSOLS FOR INHALATION TEHRAPY II. ANALYTICAL CONTROL METHODS. *J. G. Young*, I. Porush and C. G. Thiel, Riker Laboratories, Inc., Northridge, Calif.

Analytical procedures for the control of pressurized

aerosols for inhalation therapy require techniques not usually encountered in other dosage forms. Procedures are described for assay of active ingredients, amount of medication delivered per dose and moisture content. Claims for improved stability of epinephrine and isoproterenol in this new dosage form are supported by data obtained from chemical and biological stability studies.

THE EFFECT OF EMULSIFICATION TEMPERATURES AND RATES OF COOLING ON THE PHYSICAL PROPERTIES AND STABILITY OF WAX CONTAINING EMULSIONS. *L. A. Bergman*, H. G. DeKay, and G. S. Banker. Purdue University School of Pharmacy, Lafayette, Indiana.

A simple wax emulsion was prepared by a standardized procedure at different temperatures and cooled at three rates, i.e. in air, in ice, and in a water bath. The emulsification temperatures ranged from 56° to 96° C. The emulsions were studied over a period of forty seven days. Rheograms were periodically made of each emulsion over this period using a Stormer viscometer with a modified cup and bob. Viscosity, thixotropy and other rheological properties were determined from these rheograms. Particle size and specific gravity were also studied. The areas between the up and down curves of the rheograms as determined with a planimeter, were taken as a measure of thixotropy. The variation of emulsification temperatures and rates of cooling produced significant effects in certain physical properties of the emulsion system studied. Of all the emulsions produced at different temperatures, those cooled at the most rapid rate (ice cooled), exhibited the most thixotropy and were usually the most viscous. Particle size analysis demonstrated an inverse relationship with increasing temperature.

AN INVESTIGATION OF SOME PHARMACEUTICAL APPLICATIONS OF CERTAIN FATTY ACID ESTERS OF SUCROSE. *Howard Hopkins* and LaVerne D. Small, University of Nebraska, Lincoln, Nebraska.

A recently developed method of synthesis has made possible production of mono- and diacyl derivatives of sucrose, such as sucrose mono-myristate and sucrose dipalmitate. These sugar esters are nonionic, surface-active materials. The range of pharmaceutical usefulness of the two above-mentioned esters for oral-type preparations has been investigated. Sucrose mono-myristate was synthesized in this laboratory whereas sucrose dipalmitate was purchased. The monoester is water-soluble and has an HLB value of 11.7. It is not sufficiently hydrophilic to solubilize flavor oils but it is an excellent emulsifier for liquid petrolatum. The diester tends to be oil-soluble and has an HLB value of 7.5. The diester can be dispersed in hot syrups yielding gel-like products which may be variously flavored for use as a vehicle. These vehicles appear to be particularly adaptable for pediatric medications. In contrast with hitherto available surfactants, the sucrose esters are reportedly non-toxic and tasteless. However, the monoesters exhibit some toxicity on parenteral administration. Although the sucrose fatty esters may have what appears to be a rather limited range of usefulness, they do appear to be well-suited as emulsifying agents for the preparation of inexpensive, flavorable, gel-like vehicles which might be suitable for many therapeutic agents.

A COMPREHENSIVE PHARMACEUTICAL STABILITY TESTING LABORATORY III. A LIGHT STABILITY CABINET FOR TESTING THE PHOTOSENSITIVITY OF PHARMACEUTICALS. L. L. Lachman, *C. J. Swartz*, and Jack Cooper, Research Department, CIBA Pharmaceutical Products Inc., Summit, New Jersey.

The design and utilization of a light stability cabinet for testing pharmaceuticals has been described. The lighting system developed for this cabinet is intended to simulate ordinary room illumination found in a pharmacy, in a home, in a doctor's office or in other storage areas for pharmaceuticals, but under accelerated light intensity. The use of this equipment would eliminate the influence of certain wave lengths in the ultra-violet spectrum of artificial sunlight testing equipment presently in use. Several representative pieces of artificial sunlight testing equipment used in the textile and dye industries are discussed. The photosensitivity of two tablet preparations were studied utilizing this cabinet. Samples were stored in an open dish and in amber bottles. In one case the tablets contained a sulfonamide which darkened while the other tablets contained benzothiadiazine derivative plus D&C Orange No. 3 which showed fading of the color with storage. It was demonstrated that the amber glass appears to inhibit the deleterious effects of light on the tablets.

INCORPORATION OF TABLET LUBRICANTS IN THE GRANULATING AGENT II. THE LUBRICANT IN SOLUTION AND IN THE SOLID STATE. *B. J. Munden*, H. G. DeKay, and G. S. Banker. Purdue University, School of Pharmacy, Lafayette, Indiana.

A modified method for lubricating tablet granulations with water soluble lubricants is presented. In this process the lubricant was dissolved in certain granulating agents prior to the granulation of the tablet powder mixture. Lubricant effectiveness was determined by measuring the pneumatic pressure required to lift the bottom punch to eject the tablet. The effect on compression, tablet appearance and disintegration of the dissolved lubricant in the granulating agent was also studied. Six water soluble lubricants; Carbowaxes 4,000, 6,000, 9,000, 20,000, Myrj 52, and Brij 35 were used in this study. In the particular formulations studied, experimental results indicated that dissolving the lubricant in the granulating agent was effective. Certain lubricants actually produced better tablets when in solution in the granulating agent than when added dry as a fine powder to the granulation. An increased percentage of lubricant was usually required when the lubricant was dissolved in the granulating agent. Statistical analysis was applied to the experimental data.

A NEW METHOD OF MANUFACTURE OF TABLET GRANULATIONS, PART II. P. A. Tuerck, *E. L. Walters*, E. D. Carkhuff. Research Laboratories of The Wm. S. Merrell Company, Cincinnati, Ohio.

A method of manufacture has been developed in our laboratories which reduces to a minimum the normal granulating operations, amount of manufacturing time, and which enables the use of inexpensive diluents. Granulations produced by this new method have been divided into two broad classifications; low milligram potency ingredients where a major portion of the tablets may be diluent and high milligram potency ingredients where

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American Cholesterol Products, Inc.

AMERCHOL PARK . . . EDISON, N. J.

Technical Abstracts (Continued)

active ingredients constitute a major portion of the tablet. This paper is concerned with a discussion of the high milligram potency formulations. The method involves the use of standard coating pans in which granulations are formed by spraying with starch paste or other commonly used granulating solutions and subsequent drying in the pan. The method has advantages of decreasing material costs, reducing manufacturing time and eliminating a number of processing steps resulting in economies in labor and space.

PRESSURIZED PHARMACEUTICAL AEROSOLS FOR INHALATION THERAPY I. PHYSICAL TESTING. I. Porush, C. G. Thiel and *J. G. Young*, Riker Laboratories, Inc., Northridge, Calif.

The physical testing methods used for controlling the manufacture of pressurized aerosols for inhalation therapy are described. Results of the tests for uniformity of valve delivery, particle size and pressure of this new pharmaceutical dosage form are reported. A reliable and reproducible aerosolized dose of medication can be administered for inhalation therapy by means of the metering valve on the pressurized container.

THE INCORPORATION OF TABLET LUBRICANTS IN THE GRANULATING AGENT. I. LUBRICANT SUSPENSIONS AND EMULSIONS. *J. B. Appino*, G. S. Banker, and H. G. DeKay. School of Pharmacy, Purdue University, Lafayette, Indiana.

An investigation of incorporating tablet lubricants in specific granulating agents was conducted. The effect of the incorporated lubricants on the "fines" produced in the granulation, and on the hardness, disintegration time, and appearance of the tablets, was studied. The lubricant effectiveness was determined by measuring the relative force required to eject the tablet from the die. Experimental evidence indicated that lubricant incorporation in certain granulating agents was feasible for the formulation studied. Tablets produced with a lubricant suspension of magnesium stearate in starch paste were comparable to those produced by the conventional method of lubricant addition; but an increased percentage of lubricant was required. The tablets produced with a lubricant suspension of a stearate complex in starch paste were superior in practically all respects to those produced by adding the lubricant to the finished granulation. Tablets produced with a lubricant emulsion of liquid petrolatum in various granulating agents were inferior to those produced by the conventional method. A statistical evaluation of the relative ejection forces required by the lubricant-granulating agent combinations and methods of incorporation was applied.

ADSORPTION OF LIPID-SOLUBLE SUBSTANCES BY EXERCISED HUMAN KERATIN III. *Dale E. Wurster* and Robert E. Dempski. University of Wisconsin, School of Pharmacy, Madison, Wis.

The adsorption of various lipid-soluble alcohols, esters, acids and mixtures from n-heptane solutions on chromatographic columns of excised human callus tissue was investigated. Experimental evidence from infra-red analysis indicated that only certain fatty acids of the various substances investigated were adsorbed. Hydrated keratin showed stronger adsorption of fatty acids than the anhydrous form. (Continued on page 54)

LICORICE ROOT, glycyrrhiza glabra, is shown above in its raw state, and (center) after it is shredded to prepare it for extraction. In use for more than 40 centuries in a variety of applications, its derivatives have recently attracted a great deal of attention in the pharmaceutical and cosmetic industries.

The Manufacture of

Glycyrrhizin and Glycyrrhetinic Acid

GEORGE MEER, JR.*

Although the products of the licorice root, *Glycyrrhiza glabra,* have been in use for over 40 centuries, first in Asia Minor and later in Egypt, it has truly a wide range of usefulness. It is used as a demulcent and flavoring and sweetening agent in medicine, and as a flavoring agent in the tobacco industry, where over 90% of licorice products were used. Some of the extracted fiber is even used in making insulation boards and folding boxes.

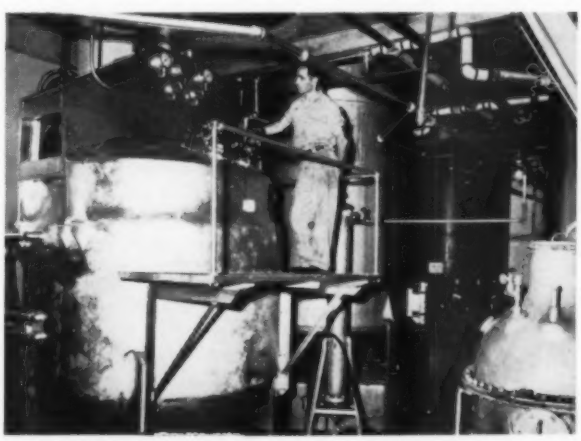
The demonstration, in recent years, of biological activity in estrogenic and dermatological applications in the derivatives of licorice, such as gylcyrrhizin and glycyrrhetinic acid, has recently attracted a great deal of attention in the pharmaceutical and cosmetic industries. A discussion of a dermatological application with a cortisone-like effect has recently appeared in this magazine (1), while the estrogenic response has been studied by other workers (2) (3). The object of this article is to briefly discuss the method of manufacture of some of these products.

Manufacturing Methods

The first step is in the shredding of bales of the root where the roots are cut or broken to approximately ¼ to ½ inch pieces. These are then sent to extractors, either of the percolator type (recirculative maceration) or countercurrent type, where they are extracted, using boiling ammoniacal water as the solvent (menstruum). Other methods of extraction and purification of glycyrrhizin have been patented (5).

The percolate or liquor is transferred to a series of vacuum evaporators where it is concentrated into soft licorice extract which may be cast into molds to form "licorice paste" or may be dried further, usually on drum driers and milled into a fine powder. This product is known as "powdered extract licorice." Some of the licorice concentrate is treated to produce licorice syrup or other specialties.

(Continued on page 40)



SHREDDED LICORICE ROOT IS PUT IN EXTRACTORS at the Meer Corporation's North Bergen, N. J. plant, where boiling ammoniacal water is used as the solvent. After this the percolate, or liquor, is transferred to a series of vacuum evaporators, where it is concentrated into soft licorice extract. This may then be cast into molds to form licorice paste, or dried and milled into a fine powder.

*Technical Director, Meer Corporation, New York City

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The major sweet constituent of *Glycyrrhiza glabra* is the glycoside, glycyrrhizin, or glycyrrhizic acid which is reported to be 50 times as sweet as sugar (4). This may be separated from the concentrated extract described above, by precipitation with sulfuric acid after the gums and starches have been removed, or it may be done directly. These gums and starches can be precipitated by the addition of a large volume of alcohol, with subsequent washing with alcohol to dissolve the adhering glycyrrhizin. The alcohol is removed and the remaining concentrate is treated with sulfuric acid to precipitate the glycyrrhizin. The glycyrrhizin may be dissolved in ammonia water and dehydrated or it can be recrystallized from 95% alcohol after the alcohol has been made ammoniacal to neutralize the remaining sulfuric acid. The crystals are then dried. The correct stoichiometric relationship would be the monoammonium salt (8) which can be prepared after several recrystallizations, but the commercial product normally has an excess of ammonia and is known as "ammoniated Glycyrrhizin."

Upon acid (10) hydrolysis of glycyrrhizic acid, one molecule of glycyrrhetinic acid and two molecules of glucuronic acid are formed. Subsequent recrystallization from aqueous alcohol (8) or other organic solvents yields glycyrrhetinic acid which is not at all sweet in taste. A great deal of work has been done in England (7) in scaling up this hydrolysis reaction to commercial scale. Other methods have been described (6) for the isolation of glycyrrhetinic acid directly from the whole root.

It has been demonstrated that there are two isomers of the sapogenin (glycyrrhetinic acid) formed in the hydrolysis reaction (8) (9) of the saponin (glycyrrhizic acid). A great deal of work has been done to characterize these compounds, but the values of the constants reported by various workers have not been similar. At the same time the ratio of the α, β, and other isomers that may be formed in the hydrolysis reaction will depend to a great extent on the conditions of time and temperature utilized. It is probable that the isomers are not formed in equal proportion, but apparently no relatively simple method has been developed for determining the actual ratio of α to β isomers in a given bath of glycyrrhetinic acid. Valuable information, particularly on relative physiological activities of the two isomers, can be obtained if it were commercially feasible to prepare the isomers in pure form.

In summary, it is apparent that licorice and its derivatives have many valuable uses and properties in many industries, and that they have several important potential uses. These results and other important discoveries in the last few years in the field of natural products such as the discovery of *Rauwolfia Serpentina* for use in hypertension, has sparked a great deal of interest in the investigation of the medicinal value of new botanicals, particularly by the large pharmaceutical companies. They are sending these new botanicals through their screening programs for physiological activity. It is through such efforts that new classes of physiologically active compounds can be discovered, and on these the chemist can build and improve.

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Excellent Papers, Large Crowd At T. G. A. Meeting

The semi-annual meeting of the Scientific Section of the Toilet Goods Association, held in the Waldorf Astoria Hotel, New York, December 1, was highlighted by an excellent program of seven papers and an overflow crowd. Photos of some of the participants follow, along with abstracts of the papers presented.

The Synthesis and Properties of Mercaptans Having Different Degrees of Acidity of the Sulfhydryl Group

J. W. Haefele and R. W. Broge
The Procter & Gamble Company

This paper is the second part of a planned three-part presentation on mercaptans. The first part discussed the sensitization proclivities of numerous water-soluble mercaptans, including many new to the literature. The major purpose of the present paper is to describe the synthesis and properties of these new mercaptans. The most important compounds were of two types:

a) Thioglycolamide derivatives, $HSCH_2CONR_2$

b) Mercaptoethylamine derivatives, $HSC_2H_4NR_2$

The reactions employed for synthesis are discussed.

The intent in this mercaptan work was to design and prepare compounds in which the acidity of the sulfhydryl group was widely varied. A four-thousand fold variation in the ionization constant was achieved, between thioglycolic acid, and the mercaptan, mercaptosuccinimide. This variation is discussed in terms of the inductive effect. Some consequences of the increasing acidity are shown. Two of the most interesting mercaptans prepared were the first heterocyclic quaternaries with the SH in the substituted ammonium group. An example is N-mercaptoethyl-N-methyl pyrrolidinium iodide.

Instrumental Evaluation of Citronella Oils and Palmarosa Oil—Geraniol, Citronellol and other Constituents

By: James A. Rogers, Jr.
Fritzsche Brothers, Inc.
Director, Instrumental Laboratory

The use of instrumental analysis to evaluate Citronella and Palmarosa oils has resulted in the isolation of new components and the confirmation of some wet methods work. The concentrations of geraniol, citronellol, terpenes and other constitutents have been reported. Seventeen components have been identified in Ceylon Citronella, nine in Java Citronella and eight in Palmarosa using V.P.C. and Infrared methods.

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Among Those Present—TGA Scientific Section Meeting, December 1, 1959

Panthenol in Cosmetics

By: S. H. Rubin, L. Magid and J. Scheiner Hoffman-La Roche, Inc., Roche Park, Nutley, N.J.

Panthenol, the alcohol analog of pantothenic acid, is a stable biologically active form of pantothenic acid, a vitamin of the B-complex group essential for growth and normal maintenance of the skin and hair. In experimental animals, one of the main effects of a deficiency of pantothenic acid is the development of lesions in the skin or hair. Ample evidence is available to demonstrate the conversion of panthenol to pantothenic acid after topical application. Panthenol has been used successfully as a healing agent in the treatment of a variety of skin disorders in the form of topical preparations. In view of the evidence that panthenol penetrates the skin, and that topical application provides a safe, beneficial treatment of various skin conditions, the incorporation of panthenol into skin creams, lipsticks, after-shave lotions and hair preparations is justified. Panthenol can be incorporated into standard cosmetic formulations with no adjustments other than maintaining the pH conditions for the optimum stability of the vitamin compound. The properties and toxicology of d- and dl-panthenol as regards their applications in cosmetic preparations are presented.

The Objective Measurement of Odor. III. Breath Odor and Deodorization

By
Dr. Donald A. M. Mackay,
Evans Research & Development Corp., New York, N.Y.
Dr. David A. Lang,
American Chicle Co., Long Island City, N. Y.
Dr. Murray Berdick,
Evans Research & Development Corp., New York, N. Y.

Instrumental advances made possible by the recent development of ionization detectors have greatly facilitated the approaches to measurement of volatiles on breath. The previously reported* direct analysis of volatiles from foodstuffs (such as peppermint, onions, bananas, coffee, etc.) has been expanded to cover the analysis of volatiles on breath before and after eating, drinking, and smoking. The effect of cleaning the teeth or chewing candy mints containing a formulation based on copper gluconate, has been demonstrated in terms of changes in the patterns of breath volatiles, and correlates with previously made sensory determinations.

Details will be given of the experimental techniques used to measure breath volatiles with both radium and tritium as ionizing sources. The theory and practice of enrichment columns, devices used to transfer the volatiles from up to several liters of breath or other carrier gas, will be described. The factors and limitations inherent in such methods will be discussed in relation to the over-all problem of measuring extremely small amounts (parts per billion) of organic substances in the presence of relatively vast excesses of air, moisture, and carbon dioxide.

*American Chemical Society meeting, Boston, April, 1959.

Recent Advances in Instrumental Examination of Fragrance Materials

By: Dr. Ernst T. Theimer, Director of Research Van Ameringen-Haebler, Union Beach, New Jersey

This paper discusses the application of the various spectro-analytical techniques—ultraviolet, infrared, mass and nuclear magnetic resonance and the separation technique of vapor phase chromatography to the structure-proof of a number of fragrance materials. A mixture of primary terpene alcohols of known composition is separated and analyzed and the structure of Geraniol and Citronellol are derived using these techniques alone. Mass spectra of the terpene alcohols, as obtained with the newly developed Time-of-Flight mass spectrometer, are compared with those from a space magnetic type instrument. Special emphasis is given to a discussion of the data available from a careful analysis of nuclear magnetic resonance spectra of the same terpene alcohols.

The synthesis is from a-pinene of a new fragrance material "allocimenol" which is a mixture of several isomeric alcohols is presented together with the use of the above instrumental methods in facilitating the development of the process. A comparison is shown of the resolution of a complex mixture of terpenes using a packed VPC column and using the newly developed capillary column.

Protection of Hydrogen Peroxide Bleached Hair with Acid Solutions

Peter Flesch, M.D., Ph.D.

When hair, bleached with hydrogen peroxide, is exposed to water, certain decomposition products and oxidized pigment are extracted from the hair shaft. These conditions arise in everyday life during the regular washing of bleached hair.

Treatment of bleached hair, immediately after bleaching, with acid solutions of pH 2.0-3.8, greatly decreased its vulnerability to water. During the process of bleaching, acid groups are formed from the disulfide linkages of hair and some of its components become water-soluble. Acid pretreatment of the bleached hair apparently causes precipitation of water-soluble components within the hair shaft and thus makes the hair more resistant against subsequent damage.

These findings indicate that when hair is bleached with hydrogen peroxide, the resulting damage does not cease when the bleaching process is ended, but recurs with every washing of the hair. A single acid treatment offers long-lasting protection against the repeated damage.

Methionine in Cosmetics and Pharmaceuticals

By: Dr. H. J. Prebluda, Ph.D. of U.S. Industrial Chemicals Co., and Irwin I. Lubowe, M.D., of Metropolitan Hospital Center of New York Medical College, New York City

Methionine occupies a significant place among essential amino acids because of its important *polyfunctional* properties in addition to the role as a structural unit of body proteins. The commercial synthesis of *DL*-methionine has accelerated new formulations of this sulfur amino acid in cosmetics, dermatologicals, and pharmaceuticals.

Radioactive tracer studies have demonstrated that its absorption through the skin suggests greater usefulness of topical approaches for therapy. An outstanding feature of this amino acid is its relative epidermal safety.

Since clinical and laboratory findings indicate improved nitrogen metabolism following intake of methionine, its usefulness in the treatment of peptic ulcer and disturbed emotional behavior has been established. Since methionine aids in restoration of normal serum—cholesterol phospholipid ratios in atherosclerotic diseases, it merits greater attention by researchers in this field.

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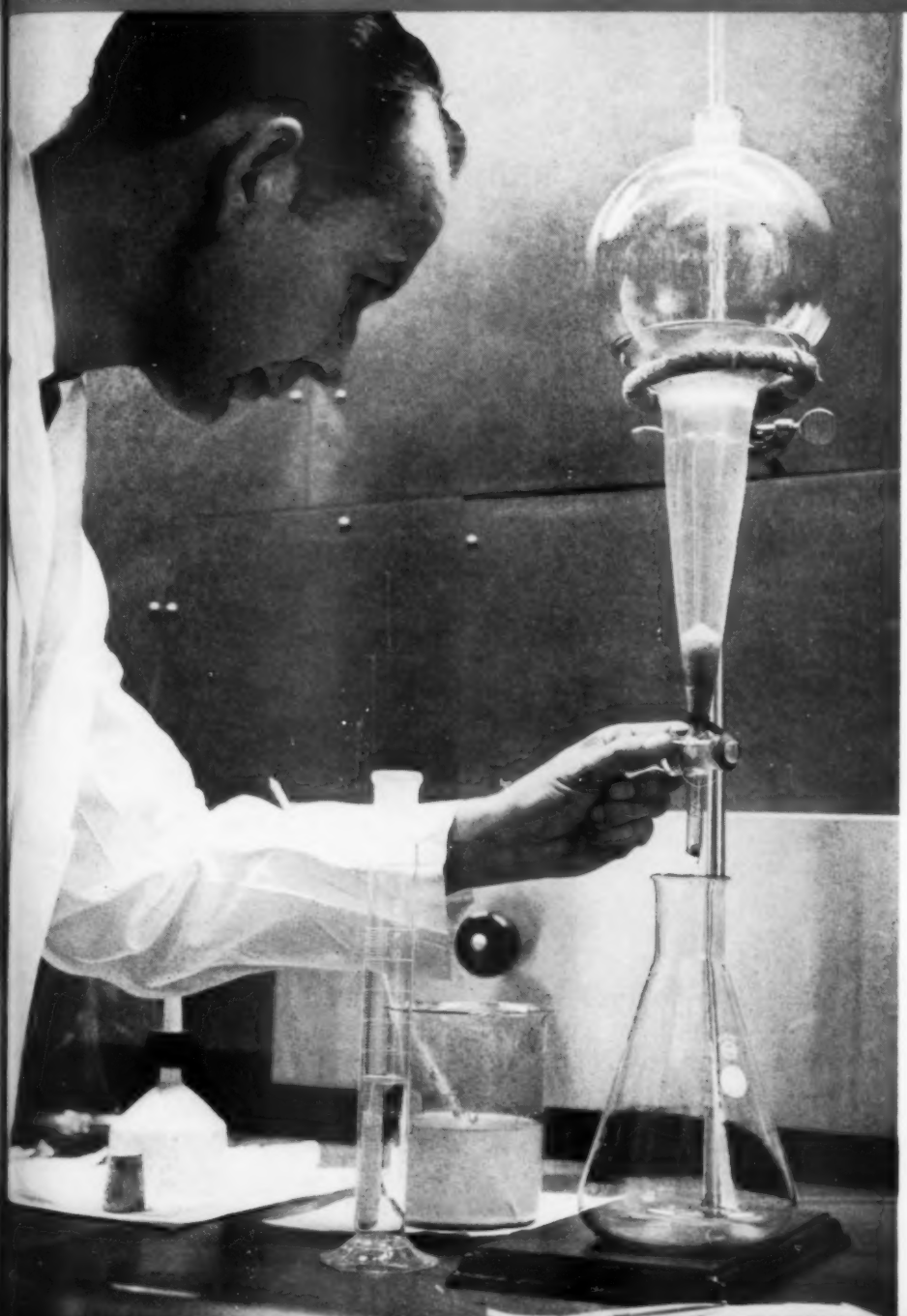

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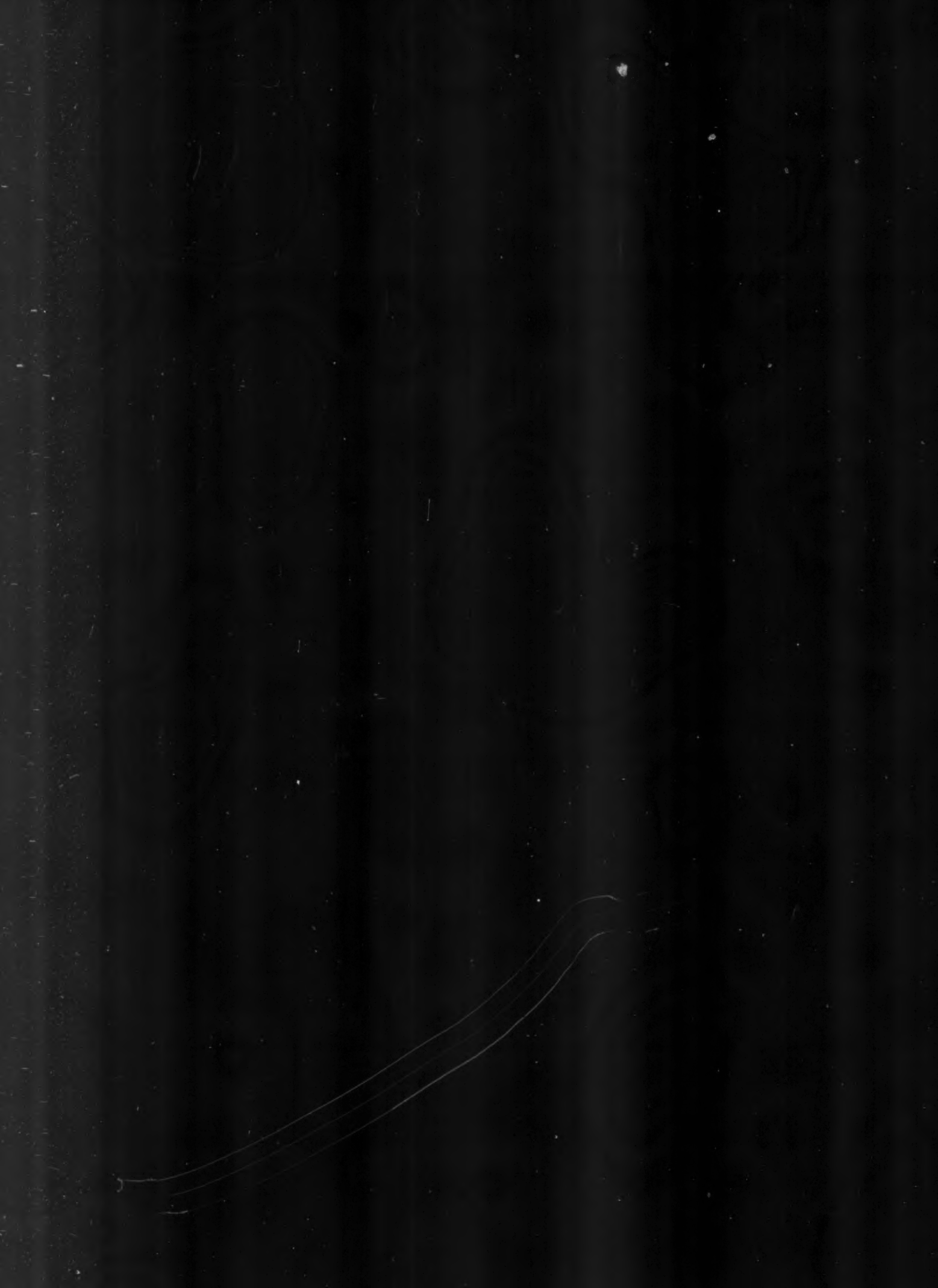

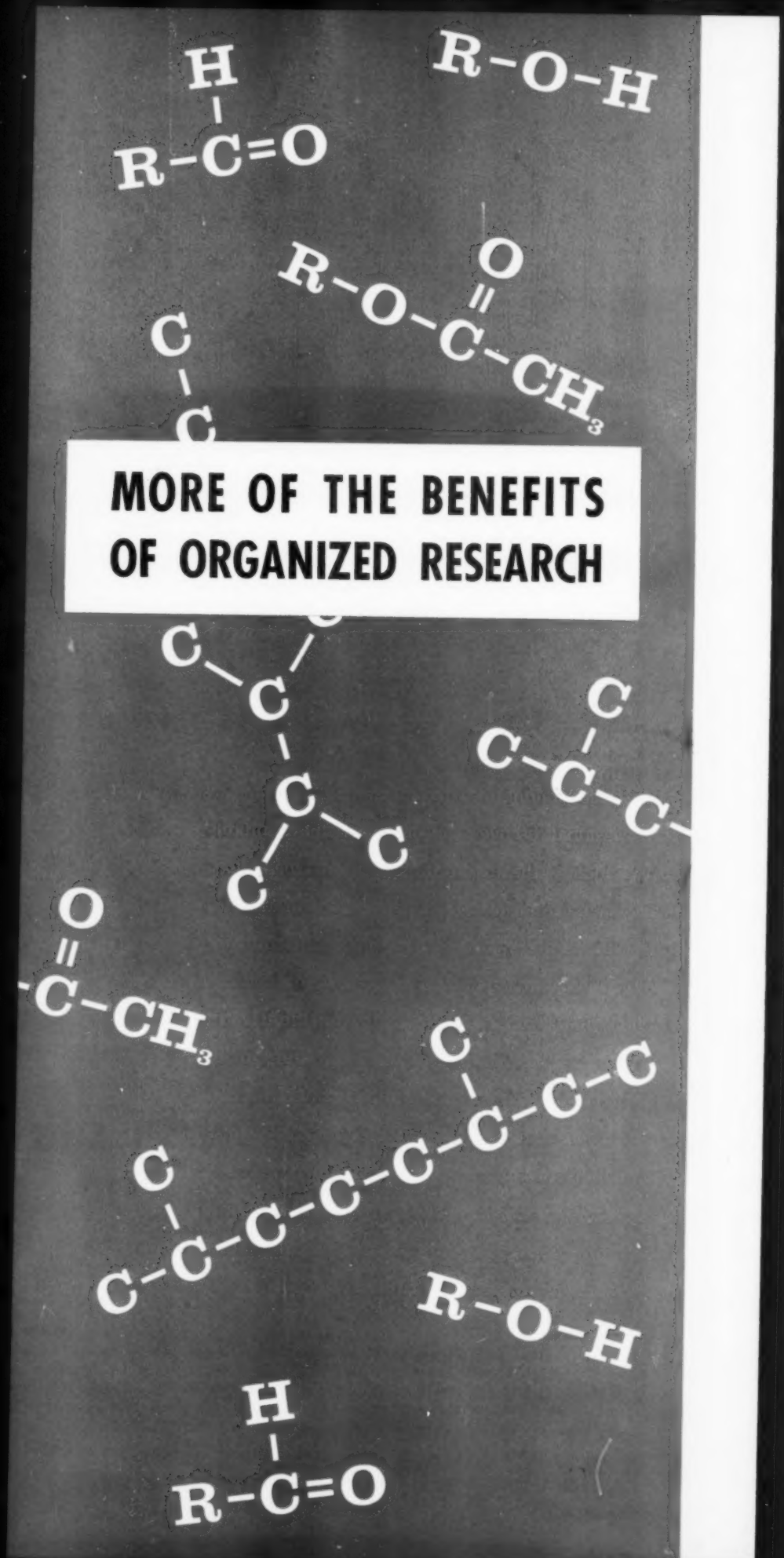
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A Method for Studying the

Static Electricity Produced on Hair By Combing

R. G. BARBER and A. M. POSNER, B.Sc., Ph.D.*

A NUMBER of methods have been described for studying the magnitude of the static electricity produced by combing tresses of hair and single fibres after treatment with various materials (1-5). They all suffer from the disadvantage of being complex and relatively insensitive to small differences resulting from different treatments.

This paper describes a new method for studying the charge produced on hair as a result of combing the hair with a comb made from a material dissimilar to the hair itself. The method is both simple and effective and allows a quick comparison to be made of the effect of various treatments on the magnitude of the static charge, and other things being equal, the effect on "flyaway." The results obtained with this apparatus have been shown to correlate very well with observations made independently in actual practice in the hairdressing salon.

The method is based on the fact that the charge produced on the hair is equal though opposite in sign to that produced on the comb. The distance at which a freely suspended strip of gold leaf commences to be attracted towards the comb is measured, and the magnitude of the charge is then a simple function of this distance.

The following gives a detailed description of the apparatus together with some of the results, which illustrate the accuracy and scope of the method.

Experimental

The static electricity produced on hair is primarily dependent on the relative humidity of the ambient atmosphere, and it was therefore necessary to generate and measure the charge in an atmosphere of known and controllable humidity. This was done by enclosing the essential parts of the apparatus in a large glass tank, the open side of which was covered with a thin Perspex sheet.

Manipulation of the hair in the apparatus was effected by a polyethylene sleeve and glove, sealed to the Perspex sheet *(Fig. 1)*.

The apparatus is considered under the headings:

Charge generation; charge detection; charge measurement; charge removal; humidity control.

Charge generation

A lock of hair of standard weight and length, tied at the root end, was drawn upwards through a fixed number of teeth (six) in an ordinary polystyrene comb which was clamped horizontally in a Teflon collar to avoid undue leakage to earth. The end of the clamp holding the comb passed through the Perspex wall of the humidity chamber to a rack and pinion device, which moved the comb in a horizontal direction to and from a freely suspended gold leaf. Further insulation against leakage was provided by a second Teflon collar between the clamp, and the rack and pinion.

Care was taken to distribute the hair evenly between the teeth of the comb and to commence the passage of the hair one inch below the knot, thus giving an effective length of 15 cm. A standard rate of pull was used, taking about one second for each stroke. The number of strokes used to generate the charge was standardized at five, though some of the earlier tests were performed using ten. After generating the charge, the hair locks were suspended from a rack in the chamber so that a constant humidity could be maintained throughout the experiment.

The comb was washed in soap and water and then thoroughly rinsed at regular intervals, preferably after each series of experiments.

Charge detection

Several principles were examined, but the most efficient and the one adopted made use of the attraction of a strip of gold leaf by the charged comb. The leaf measured $1 \times 4 \times 0.00004$ cm and was held close to, but not touching, a backing sheet of aluminum foil of the same area. The whole was supported by an insulated structure of Teflon and glass, so that the bottom edge of the leaf was exactly opposite the ends of the teeth of the comb.

As far as possible the gold leaf was not disturbed, although since the method was used for making comparisons between treatments, a control treatment was always included in any given series of tests.

The following points should, however, be noted:

(i) Since the point at which the leaf just moves was used as a measure of the charge, no undue load was ever placed on the leaf. It could therefore be used for an indefinite period without being replaced.

(ii) Both surfaces of the leaf and those of the backing plate were clean and free from grease.

(iii) Apart from the portion in the clamp, the leaf was separated from the backing plate by as small a distance as practical. Separation was necessary to avoid the slight adhesion which otherwise caused

* County Laboratories, Ltd., Stanmore, Middx.

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the leaf to spring away rather violently from the backing plate during measurement.

(iv) The leaf was then freed from creases and bends, and hung so that the bottom edge was a constant distance from the bottom of the backing strip.

(v) The bottom of the leaf was exactly opposite the centre of the tips of the comb's teeth during any part of the traverse movement of the comb.

(vi) The utmost care was taken to avoid touching the leaf with the hair.

The leaf was illuminated through the glass by a microscope lamp and viewed through a short-focus telescope, the leaf in silhouette being centred on the telescope cross wires as a reference point. To detect the charge, the rack and pinion was operated, moving the comb towards the leaf until the first detectable movement of the leaf towards the charged comb was observed. Readings were completed within ten seconds of the last stroke of the hair in the comb so as to avoid excessive charge leakage (see below).

Charge removal

Before a determination, it was obviously desirable to free the comb from any charge remaining from the previous test. The complete elimination of the charge was not easy where a number of determinations had to be carried out in quick succession. The best method used a number of 8" strands of thin wire tied together at one end and joined to a flexible wire connected to earth. The wire was drawn through the comb in a manner identical to that used in charging the hair. A large though variable portion of the charge was thus removed.

Charge measurement

The distance between the comb and leaf was measured to the nearest half-millimeter by the movement of a pointer, attached to the other end of the rack and pinion, moving across a centimetre scale. The zero reading was checked before each test, to ensure that the leaf had not become displaced.

If the distance of the comb from the leaf, when the charge is first detectable, is d, then the charge σ is given by

$$\sigma = Kd^2$$

where K is a constant depending on the dimensions and design of the apparatus. Since this apparatus was used for comparative purposes only, and in any case a control treatment was included in any series of tests, the value of K is not of importance.

Since it was difficult to remove the charge from the comb completely, it was necessary to take two readings in each determination. The first to ascertain the amount of residual charge on the comb from the previous determination, and the second to determine the amount of charge after the present determination.

To correct for the residual charge the following relationship was used:

Charge produced on the hair (σ) = total charge — residual charge

$$= K(d_o^2 - d_r^2)$$

where d_r is the comb/leaf distance giving a just perceptible leaf movement before charge generation, and d_o the corresponding distance after generation of the new charge.

Humidity control

Attempts to control the humidity using saturated salt solutions were not successful for the following reasons:

(i) Since the chamber was not hermetically sealed, movement of the rack and pinion, or glove, caused uncontrollable changes in the relative humidity.

(ii) A large amount of salt solution was required and a long time was needed to reach equilibrium.

(iii) Circulation of air within the chamber is desirable to maintain a uniform humidity and it was difficult to incorporate a fan within the space available. A laboratory air compressor was used to circulate the air through the salt solutions, but removal of the last traces of oil and contamination in the air which derived from the pump and salt solutions was difficult. The presence of this contamination caused erratic results.

Finally, air from a cylinder of compressed air was passed into the chamber through glass and polythene (not rubber) tubing only. A by-pass, through a series of water bubblers, was so arranged that any relative humidity was obtainable by varying the proportion of air passed through the bubblers. The gas was allowed to leak out of the chamber through a small orifice, a small positive pressure being maintained at the inlet.

The humidity was measured by a hair hygrometer, suspended in the chamber, and by another one placed in a small chamber on the inlet pipe which served as a check on the relative humidity and facilitated control of the incoming gas. By adjusting the flow of gas, whenever necessary, it was possible to maintain the relative humidity at a specified value, to within ± 1 per cent.

The calibration of the meters was checked using saturated salt solutions, and appropriate correction factors were employed wherever necessary.

Materials and Treatment

The hair used was of good quality and cleaned by the suppliers, using a mild soapless shampoo, and was otherwise untreated. Some natural grease still remained, as shown by solvent extraction on one or two samples. It was supplied in one-ounce locks; each lock being reputed to come from the same head, and care was therefore taken that all samples for one test came from the same lock.

The hair locks were cut to 8" in length, largely eliminating the curled ends, weighed into one gram samples and tied one inch from the root end.

Since most comparisons were made between different shampoo treatments, the following standard shampooing technique was evolved:

(a) The hair was pre-wetted by immersing ten times in 200 mls of tap water at 35° C.

(b) The hair was immersed in 200 mls of shampoo solution (made up with tap water) at 35° C for 3 minutes, occupied as follows:

1st minute—hair pulled repeatedly through a comb,

2nd minute—hair pulled repeatedly between the fingers, and

3rd minute—hair pulled repeatedly through a comb.

(c) The hair was rinsed ten times in each of three 200 ml tap water at 35° C, being squeezed dry between the fingers after each lot of rinsing.

(d) The wet hair was combed free of snags and put between clean linen cloths until all samples in the experiment were shampooed.

(e) When all samples had been treated, they were hung in the air to dry for two hours and then suspended freely in the experimental chamber. The air supply was turned on, adjusted to the desired relative humidity and left for at least one hour to reach equilibrium. Each sample was then tested in turn to determine the amount of static electricity generated on combing.

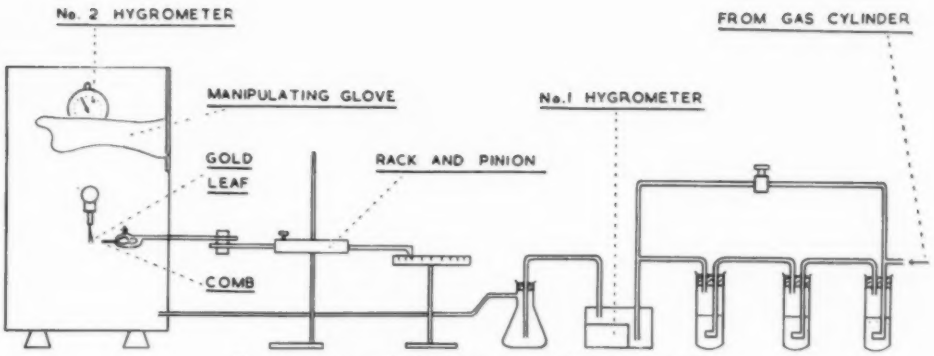

Fig. 1. The apparatus showing the arrangement of the component parts

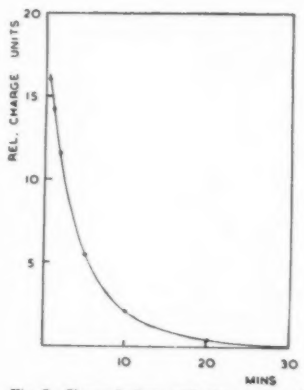

Fig. 2. Charge leakage with time on 1 g of hair washed in a standard shampoo. Tested at 70 per cent Relative Humidity, using ten hair strokes.

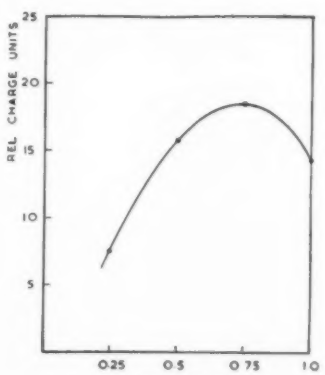

Fig. 3. Variation in charge with weight of hair sample. All samples washed in a standard shampoo. Tested at 40 per cent Relative Humidity using ten hair strokes.

Results and Discussion

The rate of the leakage of the charge from the comb

Although every attempt was made to insulate the comb, it was inevitable that some loss of charge should occur with time.

A 1 g lock of hair was shampooed using the standard technique. The hair was pulled through the comb ten times (i.e., ten strokes), and the charge on the comb determined at regular intervals. The relative humidity in the chamber was set at 70 per cent, so as to produce conditions most favourable to charge leakage. The results are shown plotted in *Fig. 2.*

As can be seen, the curve is a typical exponential decay curve.

Although the charge leaks away fairly rapidly, its magnitude is sufficiently constant during the ten seconds required to take a reading. The general reproducibility of the results indicates that this leakage is not important in these experiments.

The reproducibility of the results

To obtain some indication of the reliability of the method, the charge was determined on five similar locks of hair after being given the identical shampoo treatment. The relative humidity was set at 40 per cent so that any variability would be as large as possible. The results are given in *Table 1.*

Table 1

The mean charges generated on each of five 1 g locks of hair after identical treatment

Relative Humidity 40 per cent 10 hair strokes per determination

Lock	*Mean Relative Charge Units	Standard Deviation
	A	B
1	19·4	0·98
2	22·5	1·34
3	20·4	1·03
4	22·0	0·98
5	22·1	0·65

*Mean of 5 determinations
Standard deviations of the means in column A = 1·35
Mean of standard deviations in column B = 1·0

As will be seen, the accuracy of the charge determinations is slightly greater than the sample to sample reproducibility, but both are adequate.

The effect of the weight of the hair sample on the charge

A number of samples of hair of different weights but identical length were given the standard shampoo treatment and the charge determined at a relative humidity of 40 per cent. The results are shown in *Fig. 3.*

The charge was found to increase with weight, up to an optimum value of 0.75 g and then it diminished, presumably due to the decrease in the number of hair/comb points of contact, as the hair was forced into strands between the teeth of the comb.

The effect of the number of strokes of the hair through the comb

Half gram and gram samples of hair were given the standard shampoo treatment, and the charges produced by varying the number of strokes of the comb were

determined at a relative humidity of 40 per cent. The results are shown in *Fig. 4.*

It is not surprising that very little difference was obtained for 0.5 g and 1.0 g of hair, in view of the fact that in this region the charge is approximately independent of the weight of hair *(Fig. 3)*.

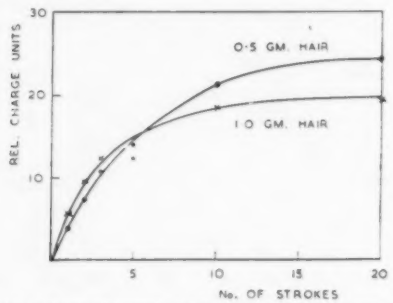

Fig. 4. Variation in charge with number of hair strokes. Two hair samples of different weight, washed in a standard shampoo and tested at 40 per cent Relative Humidity

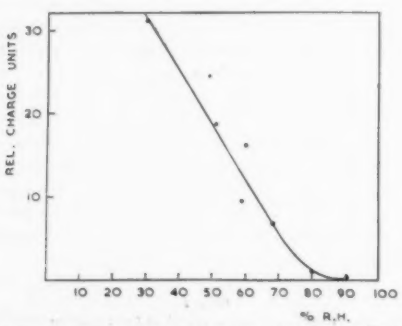

Fig. 5. Variation in charge with Relative Humidity. 1 g samples of hair washed in a standard shampoo and tested at different humidities using ten hair strokes

The general shape of the curve shows that the charging operation becomes more difficult as the charge on the hair or comb increases. These tend to become saturated with charge after a certain number of strokes.

The variation of charge with relative humidity

Using one gram locks of hair and the standard shampoo technique, the charge was determined on different samples of hair at different relative humidities.

Over the middle range of humidities the charge was found to decrease linearly with increase in relative humidity.

It is interesting to note that the relative humidity at which there is virtually no charge, i.e., 85 per cent, corresponds roughly to the point on the adsorption isotherm of wool keratin at which multilayer formation begins to occur(6). At this point surface conductivity could be expected to be maximal and the static charge minimal.

Table 2

The mean charge and standard deviation on four 1 g samples of hair, with and without an earthing wire attached to the hair

	Earthed	S.D.	Not Earthed	S.D.
Shampoo A — 1	8·5	0·6	10·6	0·9
2	13·7	1·1	12·1	1·2
Shampoo B — 1	11·8	1·3	10·8	1·4
2	11·0	1·4	12·0	2·5

The effect of earthing the hair

Four samples of hair were given the standard shampoo treatment with two different types of shampoo. Each sample was tested

(a) earthed in the normal manner, and

(b) with the earthing wire removed.

The results are shown in *Table 2.*

There is no significant difference between the results obtained, with and without the hair being earthed.

A comparison of the charge produced after shampooing with a number of types of shampoo

Samples of hair were washed with five shampoos, each being based on a different type of commercially available alkyl sulphate. The charges on three of them were determined at three different relative humidities.

The shampoos were compared on an equivalent basis of the active detergent ingredient. The results are shown in *Table 3.*

Table 3

Comparison of the magnitude of the charges produced after shampooing with five different types of alkyl sulphate shampoo

R.H.	40%		60%		70%	
Shampoo	Mean Charge	S.D.	Mean Charge	S.D.	Mean Charge	S.D.
A	18·5	2·17	16·0	1·64	10·2	1·31
B	20·3	1·50	15·2	1·99	9·6	1·14
C	19·4	1·78	13·0	1·75	9·6	1·23
D	18·5	—	—	—	—	—
E	20·2	—	—	—	—	—

Examination of these results shows that there is no significant difference between any of these shampoos, in regard to the magnitude of the static charge produced on combing the dry hair after treatment with the shampoo.

The effect of charge-reducing materials

Four samples of hair were given the standard shampoo treatment, and two of them were rinsed in a solution of a cationic detergent. They were then thoroughly rinsed in warm tap water and dried. The charges were determined at a relative humidity of 40 per cent, and a reduction of 95 per cent of the charge was found in both cases.

As is well known, ethylene oxide condensates were found to inhibit the production of static electricity only so long as substantial amounts were left on the hair. Unlike the cationic detergents, they were not able to resist the effect of thorough rinsing.

Conclusion

It is beyond the scope of the present paper to theorize on the precise origin of the static electricity produced on hair after combing. The paper is merely presented to demonstrate the scope of a new method for making a rapid comparison between the effect of different treatments of the hair.

Acknowledgments

The authors' thanks are especially due to Dr. R. H. Marriott for his continued interest, help and advice in this work.

We should also like to thank the Directors of County Laboratories, Ltd., for giving their permission to publish this paper.

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Technical Abstracts (Continued from page 38)

QUANTITATIVE DETERMINATION OF ETHANOL IN PHARMACEUTICAL PRODUCTS BY GAS CHROMATOGRAPHY. *Harold J. Wesselman.* Eli Lilly and Co., Indianapolis, Ind.

The presently used U.S.P. XV method for ethanol is compared with the gas chromatography method. Advantages and disadvantages of both methods are discussed. Typical results obtained by both procedures when applied to tinctures, fluid extracts, elixirs, and other products are compared.

The results obtained from three gas chromatographs each having a different type thermal conductivity detector are presented. Three types of sample injectors are compared and five different stationary phases are examined.

THE PHOTOOXIDATION OF DIHYDROXYPHENYLALANINE IN THE PRESENCE OF 8-METHOXYPSORALEN. *Joseph Judis.* College of Pharmacy, University of Toledo, Toledo, Ohio.

8-Methoxypsoralen (8-MOP) is well known for its ability to stimulate melanin formation in vitiligo or normal skin if administration is couped with exposure to sunlight or ultraviolet light. The exact mechanism is unknown although it is presumed that dihydroxphenylalanine (DOPA) oxidation to melanin is somehow stimulated. As an approach to studying the mechanism of action of 8-MOP, the latter was incubated with DOPA and exposed to various types of light. Sunlight, white light, or long wave ultraviolet light (3660 A) stimulated the oxidation of DOPA in the presence of 8-MOP but not in the absence of the latter. 8-MOP protected DOPA against short wavelength ultraviolet (2540 A) although DOPA was oxidized by the latter in the absence of 8-MOP. The photooxidation of DOPA in the presence of long wavelength ultraviolet light and 8-MOP was more rapid at pH values above 7 and was completely inhibited by ascorbic acid, cysteine, cysteamine, B-aminoethylisothiuronium bromide HBr and partially inhibited by sodium thioglycollate. The possible implication of these *in vitro* observations to the mode of action f 8-MOP *in vivo* will be discussed.

ACCELERATED FADING OF CERTIFIED DYES IN THE PRESENCE OF NONIONIC SURFACTANTS II+ KINETICS. *A. J. Raetteman,* A. J. Goudie, and M. W. Scott. Johnson and Johnson Research Laboratories, New Brunswick, N. J.

The rate of color loss of 0.001% aqueous solutions of FD&C Blue #2 in the presence of 1.0% Pluronic F-68 and of 0.001% FD&C Red #1 in the presence of 1.0% Brij 35 has been determined. Absorbance data obtained from samples aged at 4 different temperatures for varying time intervals show that the rate of fading follows pseudo first order kinetics. Comparative rate determinations for the dye solutions alone illustrate the accelerating effects of the surfactants.

THE QUANTITATIVE DETERMINATION OF FREE MENTHOL IN PEPPERMINT OIL. *Martin I. Blake.* North Dakota Agricultural College, School of Pharmacy, Fargo.

The free menthol content of peppermint oil is determined by refluxing a sample of oil with chloroacetyl chloride. Hydrogen chloride, a by-product of the reaction, is carried over into a solution of standard silver nitrate with the aid of nitrogen gas. Excess silver nitrate is determined with standard ammonium thiocyanate.

ACCELERATED FADING OF CERTIFIED DYES IN THE PRESENCE OF NONIONIC SURFACTANTS I. SURVEY. *M. W. Scott,* A. J. Goudie, and A. J. Huetteman. Johnson and Johnson Research Laboratories, New Brunswick, N. J.

The retention of color in aqueous solutions containing certified dyes (0.001%) and nonionic surfactants (1.0%) was measured after 14 days storage at 48.8°C. Six dyes (FD&C Blue #2, Yellow #5, Red #1, Red #4, Green #1 and D&C Orange #3) and five commercially available surfactants (Tween 20, Brij 35, Igepal CA-710, Myrj 52 and Pluronic F-68) were included in the study. In all but four of the thirty systems examined, accelerated fading was noted over that obtained with solutions of the dye alone. The importance of these findings in pharmaceutical and cosmetic formulations is reviewed.

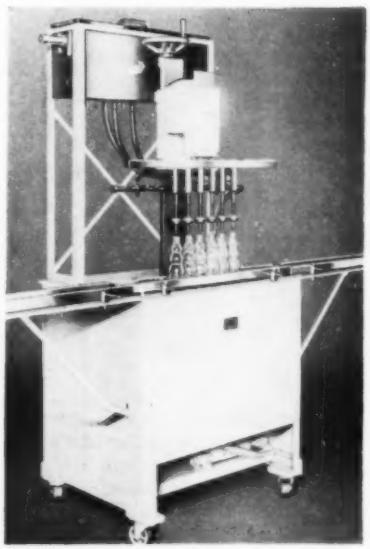
SYNTHESIS AND ANTIFUNGAL STUDIES ON SORBIC ACID DERIVATIVES. *Dale H. Cronk,* Louis C. Zopf, and James W. Jones. State University of Iowa, College of Pharmacy, Iowa City, Iowa.

Since sorbic acid is known to possess fungistatic properties, it was the objective of this study to prepare a series of esters and amine salts of this acid and to make *in vitro* antifungal tests of these compounds. Twelve derivatives were prepared and tested against four types of pathogenic fungi. These compounds included three chlorinated phenol derivatives, chlorothymol, o-hydroxyphenol, o-chloro-m-cresol, methyl p-hydroxy benzoate, an anilide and amine salts of morpholine and isobutylamine. The latter two appeared to be the more effective of the antifungal agents prepared. Two tests, method A was the agar plate—paper disk technique and method B, agar plate—hydrophilic ointment base technique. In method A the compounds were tested on a 5% w/v basis while in method B the compounds were tested on the basis of 0.3 moles of sorbate/Kg. of hydrophilic ointment base. Method B indicated more promising results as to the antifungal activity of the compounds prepared. It is believed that some of the lesser effective compounds may be a potentially useful agent if used in conjunction with a solubilizing agent.

ESTERIFICATION OF TWO STERICALLY HINDERED ACIDS USING ULTRASOUND WAVES. *Robert J. Gerraughty* and Paul J. Jannke. University of Connecticut, Storrs, Conn.

Ursolic acid and o-thymotic acid exhibit steric hindrance, and direct esterification of these acids was not possible under ordinary conditions. The explanation of the phenomenon of steric hindrance is discussed briefly, and reasons for believing that ultrasound waves might make direct esterification possible are proposed. A method for preparation of a series of straight chain esters of both ursolic acid and o-thymotic acid with the aid of low frequency ultrasound waves is presented. The establishment of the identities of the esters formed is included. Determination of the rates of esterification by a simple method is reported and the results are discussed briefly. A study of the mechanism of the reaction under he influence of ultrasonics is presented, and this mechanism is compared to that of direct esterification under normal conditions.

New PRODUCTS & IDEAS

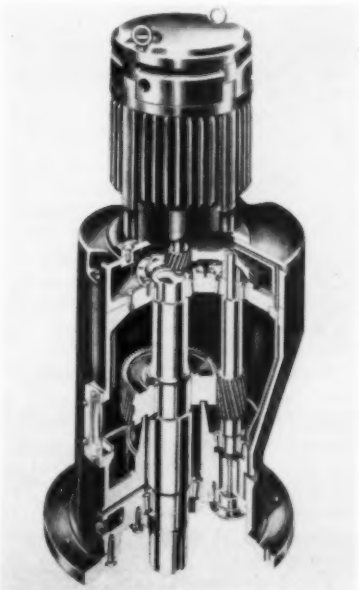


Gravity Filler

A new model EGR Gravity Filler series, featuring new design techniques has been introduced by Ertel Engineering Corp. Ertel engineered spouts provide for quick horizontal and vertical changeover. The simplicity of spout design permits easy dismantling and cleaning. The new EGR series spout bar adjustment is horizontally controlled by a simple to operate handwheel. All liquid contact parts are stainless steel, and balanced action operation lets the operator use both hands. The Ertel Model EGR series will fill cans, plastic bottles, and other standard containers up to 1 gallon capacity with a minimum neck opening of 7/16". Model EGR will not collapse or distort containers, and is particularly suited for filling foaming liquids. **Ertel Engineering Corp.**

Hydrogen-Nitrogen Generator

Hamler-Lewis, Ltd., and North American Philips Company, Inc., Cryogenics Division, will cooperate in marketing the new Norelco Ammonia-Gas Separator. Philips is responsible for the development and production of the new machine and Hamler-Lewis will sell and install the equipment in some of the major industrial centers in the United States. The Norelco Ammonia-Gas Separator incorporates unique design principles and employs a super cold refrigerator developed by Philips to provide compact machines that produce high purity hydrogen and nitrogen gases at low cost. This development makes oxygen-free and hydro-carbon-free hydrogen readily available from dissociated ammonia for use as needed. **North American Philips Co.**



Vertical Fluid Mixers

A major improvement in gear drives for vertical fluid mixers is announced by Philadelphia Gear Corp. The company's Philadelphia mixers are now available with gear drives having case hardened, precision-ground gears for greater load-carrying capacity and longer life, with reduced sound level and vibration. Philadelphia vertical fluid mixers are made in standard models ranging from 1 hp to 200 hp and special models up to 500 hp. Mechanical seals or packed stuffing box may be specified and paddle or turbine-type impellers are available. **Philadelphia Gear Corp.**

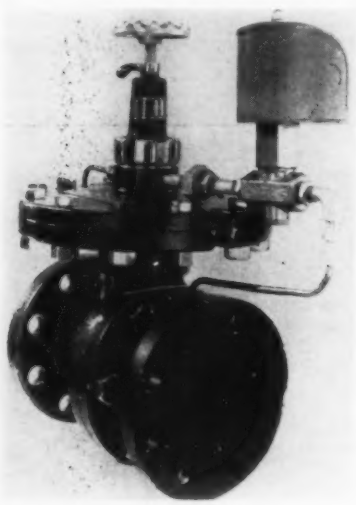
Volumetric Flask

A unique, square-shaped, borosilicate, volumetric flash which saves space is now being introduced to the laboratory sciences by Kimble Glass Company. These new space-saving flasks, offered for the first time, are especially designed to take up less area and pack more closely on shelves, in refrigerators and in cabinets. They come in five sizes: 100 ml, 250 ml, 500 ml, 1,000 ml and 2,000 ml. The 1,000 ml size covers 38 per cent less shelf area than a conventional flask of equal capacity.

(Continued on next page)

NEW PRODUCTS & IDEAS

Manufactured from Kimble KG-33 borosilicate glass, this new square flask meets National Bureau of Standards specifications. It contains all of the qualities found in Kimble's hard glass line: durability, stability, resistance to thermal shock and chemical attack (except hydrofluoric acid). **Kimble Glass Co.**



Solenoid Regulators

Solenoid actuated regulators for on-off control are now available from OPW-Jordan. Widely used in industry wherever remote shut-off, remote start up, automatic safety shut-off, and combination pressure and temperature control with on electric signal are needed. When the solenoid opens, it allows steam to enter the pilot chamber and operate the main valve as a normal pressure regulator. But when the solenoid closes, the steam supply to the pilot is shut off and the main valve closes automatically. Available in ductile iron ½"-3", bronze ½"-2", and cast iron 2½"-3". Suitable for maximum temperatures of 500° F and pressures of 250 psi. ½"-2" No. 1163 Series has screwed ends and 2½"-3" No. 1163-F Series has flanged ends. Features packless construction, silent operation, freedom from wire drawing and positive tight shut-off. **OPW-Jordan.**

Electron Analyzer

An electron microprobe analyzer, analytical instrument which excites X-radiation from elements in a volume of a few cubic microns on the surface of a sample, has been announced by Philips Electronic Instruments.

The Electron optics system is contained in a vertical column and includes a biased gun, two magnetic lenses and alignment devices. Effective focus is of the order of 2 microns diameter when measured in Zirconium at 25 KV (kilovolts). The instrument is designed to analyze all elements from (magnesium) #12 up in the atomic table.

Accelerating voltage is adjustable in 5 KV steps through a range from 10 to 50 KV. Sensitivity permits X-ray emission analysis of 0.1% concentrations of elements #24 (Chromium) to #42 (molybdenum) in a zirconium matrix when the sample is excited by electrons at the electron focus.

Specimen stage now accommodates samples up to ½ in. diameter and ¼ in. thickness. Translation facilities operate in two orthogonal directions, one horizontal and one inclined 30 degrees. Tilt adjustment permits external manipulation for alignment of specimen plane and horizontal translation axis.

X-ray optics are enclosed in a ray-proof chamber containing three or more adjustable curved-crystal spectrographs or one scanning X-ray spectrograph. Helium bags are optionally available for long wave length use. Two Geiger counters and either one scintillation or one flow proportional counter (as customer specifies) are included.

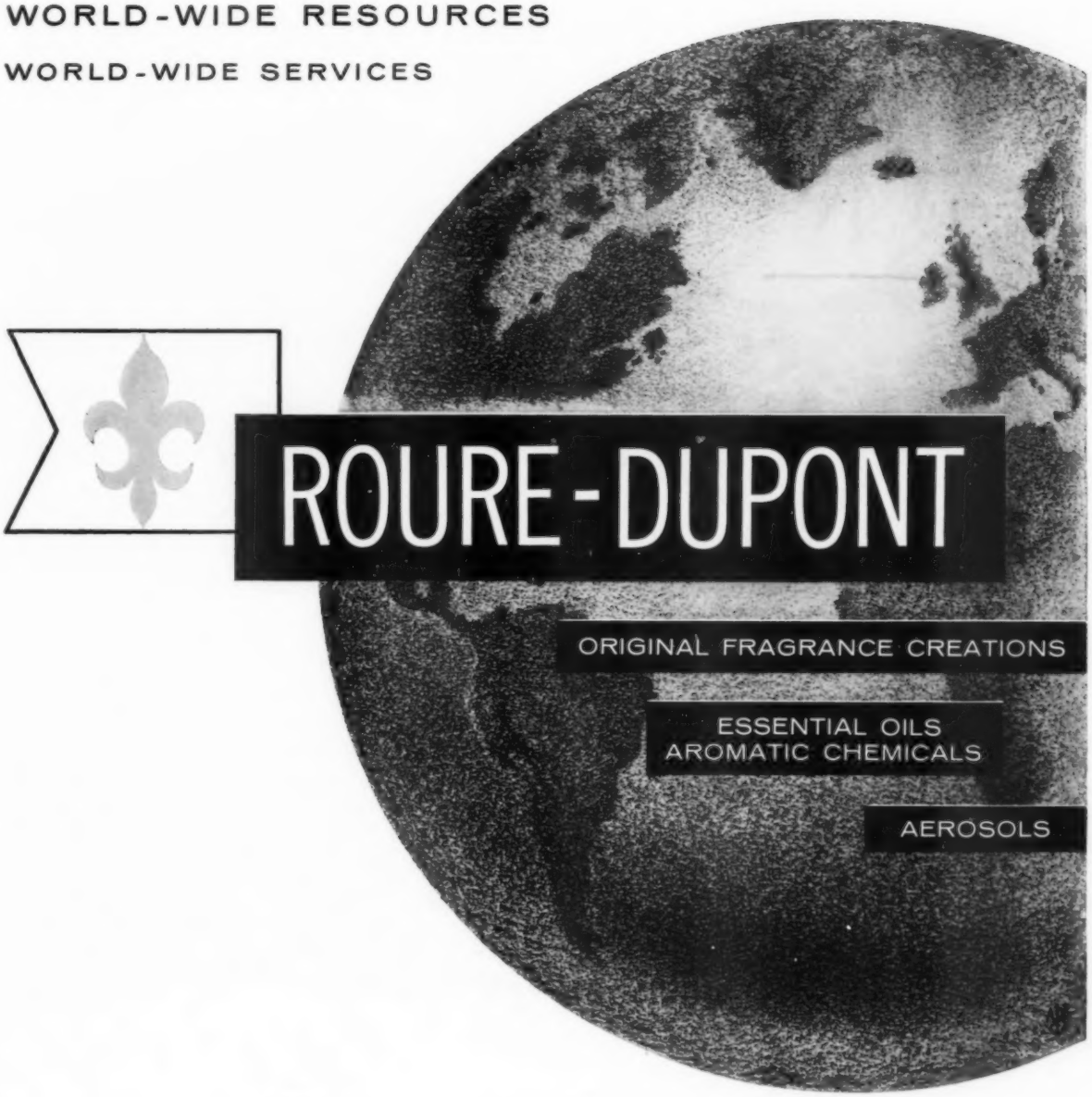
X-ray optics are mounted in a plane which is approximately horizontal in order to eliminate sensitivity due to specimen height and misalignment. Ray-proofed construction meets requirements of prevailing laws and codes. X-ray chamber is easily removed to permit substitution of other equipment. **Philips Electronic Instruments**

Chromatography Recorder

The Honeywell Series 143X Chromatography Recorder is an ElectroniK strip chart instrument with features designed especially for vapor phase chromatography recording. These features include continuous standardization, low-inertia pen carriage, high resolution slidewire and provision to add accessories such as a retransmitting slidewire, a manual chart speed changer, limit switches and recorder feet for portable use. **Minneapolis-Honeywell Regulator Co.**

WORLD-WIDE RESOURCES

WORLD-WIDE SERVICES



Roure-Bertrand Fils, Grasse, and Justin Dupont, Argenteuil, France, as well as their facilities in North Africa, India, the Far East and South America, have for decades been prime processors of basic ingredients for the perfumers of the world.

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1

MAX FACTOR—1

Max Factor introduces his new Translucent Creme Puff and Translucent Face Powder as the first foundation make-up requisites to provide the perfect "neutral" background fashion make-up effect for today's colorful accents of lipstick and eye make-up. Their no-color feature, feather-light texture, and exclusive translucent effect allow the natural skin tones to show through and also permit the shade of make-up foundation, when worn underneath, to retain its true color. Translucent Creme Puff Compacts will retail at $1.25, refills at 85¢, and Translucent Face Powder at $1.25—all plus tax.

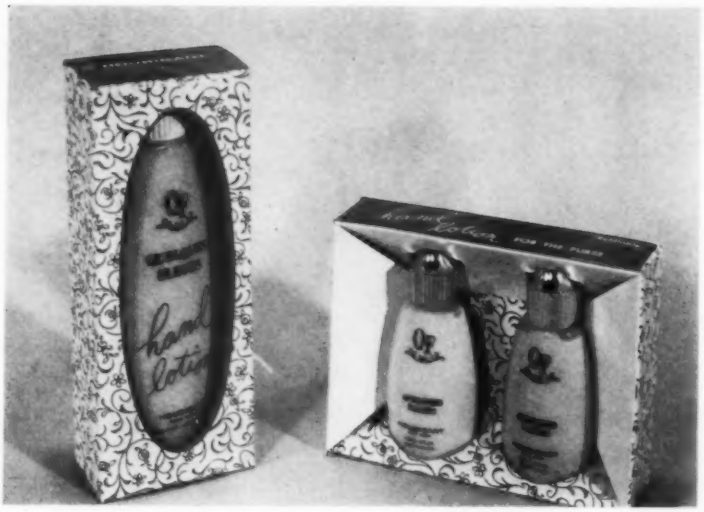
2

MARQUAY—2

Marquay of Paris has introduced its new Coup de Feu perfume to the United States. Salvador Dali was commissioned to design the package of black, white and scarlet. Says Dali, "I wanted the effect of burning nights and the irradation of fire, symbolizing the flame and the explosion of the spirit of youth." His design for Coup de Feu won him the annual medal award at the Festival de la Qualité Francaise. Sizes run from one-eighth ounce to a full ounce. The company reports that it is considerably more expensive than any other recognized top-flight brands.

HOUBIGANT—3

Houbigant introduces new packaging for its Quelques Fleurs hand lotion. It will be available in a squeeze bottle with a dispenser, 4 oz. to retail for $1.00. Customer has a choice of pink or blue lotion. To stress the need for constant hand care, both at home and away, Houbigant offers a new plastic ½ oz. purse traveler with a dispenser. The purser is easily



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refilled from the dressing table size. Two pursers—one containing blue lotion, the other pink—are paired in a flower-strewn package for $1.00, plus tax. Both presentations are for January delivery and will be available only for the hand lotion season.

HELENE CURTIS—4

Focusing on a glamour appeal for holiday promotion, Helene Curtis will add a package of "Stardust" gold and silver glitter for the hair with each $1.35 and $1.69 container of Spray Net, both Regular and Super Soft. To capture consumer interest, provocative window banners announce the "beauty" offer . . . "Free-Stardust. Try a Stardust streak", and "Tonight, tip your curls with shimmering Stardust". "How-to-apply" instructions are attached to the Spray Net container.

5

BARBARA GOULD—5

Available in five exquisite "Sequin" shades, the Barbara Gould Liquid Eye Liners are specifically designed to color-coordinate with the Lash-O-Magic Mascaras previously introduced. Moreover, the presentation of this new preparation has been specifically designed to offer maximum ease in usage. Since the bottle and brush have been combined into a single unit, the necessity of either cleaning the brush or disposing of it after application has been completely eliminated. Each Barbara Gould Liquid Eye Liner contains two full drams of liquid, is individually cartoned, and will be priced at $2.50 complete.

SCHIAPARELLI—6

Eau de Parfum Mist in Shocking is the newest presentation of this internationally-known Parisian fragrance. In time for Christmas selling, this vibrant scent may now be quickly and easily sprayed on. Three ounces come in a crystal-clear glass fluted spray-on bottle with highly-stylized gold cap. Attractively packaged in a pink-and-gold lid-type box.

6

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Dr. William S. Gump, Research Associate of The Givaudan Corporation and Sindar Corporation, receiving the Society of Cosmetic Chemists Medal Award from Society President Savery F. Coneybear.

S.C.C. Honors Dr. William S. Gump

Society of Cosmetic Chemists Medal Award presented to Dr. William S. Gump . . . Informal photos of members and guests . . . Abstracts of papers presented at the meeting

For his contributions to the "art and science of cosmetics," Dr. William S. Gump, Research Associate of The Givaudan Corporation and Sindar Corporation, received the coveted Medal Award of the Society of Cosmetic Chemists at the annual banquet of the Society in New York on December 2. Mr. R. E. Horsey acted as eulogist, and the award was made by President Savery F. Coneybear. Dr. Gump is the eleventh recipient of the Medal Award.

Seven papers were presented at the well-attended morning and afternoon sessions of the Annual Meeting. Abstracts of some of the papers follow.

New Trends In Cosmetic Testing

Louis C. Barail
Consulting Biochemist Toxicologist, New York City

The recent advances in biological, chemical and physical sciences have given a great impulse to research and testing in the field of Cosmetology. A result of this state of affairs is that almost all empirical methods, for a long time cherished in a few cosmetic laboratories have been abandoned and replaced by scientific and reliable methods. A great deal of prejudices, fads, fallacies, misconceptions, and basic errors are gradually disappearing or being corrected.

The Author describes briefly new analytical methods used in various types of cosmetics, new research processes made with up-to-date instruments and apparatus, and the help given to research by associated fields of great value, although very often not very familiar to chemists and biologists.

Two fields in which scientific methods now prevail are the measurement of odors and the utilization of radioisotopes.

The measurement of the intensity of odors had been empirical for a long time, being done without instruments or with unreliable apparatus of low efficiency; no accurate and reproducible results were ever available. Today, the Osmagraph (R) permits the accurate measurement of the intensity of all odors, faint or strong. Odors can now be classified into 300 intensities, which are expressed numerically and are reproducible within a margin of 3 to 4 per cent. This is particularly valuable in the testing of skin or air deodorants, or the odor contamination from within or without through packaging materials used in the cosmetic trade, or many other applications.

The use of radioisotopes as tracers in animals and human subjects studies has greatly increased, since Barail's pioneer work which was published in 1949, the first time tracers were used in cosmetic research. Tracer studies are conducted to establish among other things the penetration or the superficial retention of chemicals by the skin and mucous membranes. While some radio-

Why..."Encyclopedia of cosmetic material trade names"?

First, let it be known that the title, as lengthy and wordy as it is, does not begin to describe the full content and function of this great reference work by the eminent deNavarre.

To be sure, it presents a comprehensive, never-before published, **international** listing of more than 3000 cosmetic material trade names.

Of equal if not greater importance, the Encyclopedia serves to identify the composition of the particular materials and in many instances also lists specific types of cosmetic items in which they are used... plus a complete, cross-indexed classification of the various types of materials... plus the complete name and address of the supplier of each material.

Over ten years ago deNavarre saw a real need for such a technical reference book as this. That is why and when he started to compile the necessary material from all over the world. In the interim years, as the number of trade name materials grew, as new sources entered the field, the need for this type of reference volume grew apace. And over these years deNavarre religiously devoted time, effort and care in building, editing, refining and **organizing** his expanding storehouse of material.

Obviously, this Encyclopedia, because of its definitive content and function, because of its finger-tip reference and cross-reference features, because it does represent the answer to a long felt growing need, will serve its highly selective subscribers not only well but over and over again for years and years to come.

426 pages, 6" x 9", clothbound, shipped postpaid anywhere in the world at **$7.50 per copy.** To order copies, write Book Division, **American Perfumer & Aromatics, 48 West 38th Street, New York 18, New York, U. S. A.**

isotopes are dangerous and others not recommended, a few are safe and give results which will greatly contribute to the advancement of cosmetic research.

The second part of the paper deals with bacteriological and toxicological methods approved by the Food and Drug Administration and other Government agencies, to establish the harmlessness and safety of cosmetic products and their constituents.

Finally, new packaging testing methods approved since the publication of the Author's book: "Packaging Engineering" are fully described and suggestions given for the proper use of the newest and most versatile and efficient packaging materials.

Vinyl Copolymer in the Cosmetic Cosmos

Paul Weitz
National Starch and Chemical Corporation

Polyvinyl acetate has been used for many years in applications such as adhesives, paints, paper coatings, textile finishing and non-woven fabric binding. While these uses are in no way connected with cosmetics, many of the properties required—such as product stability, lack of skin irritation, odor and color—are important to cosmetics.

Polyvinyl acetate is derived from abundant raw materials—acetylene and acetic acid. The resin is made by a polymerization reaction, which is described with general details. Copolymerization is discussed with emphasis being placed on its importance in developing unique, highly specialized resins. The specific vinyl acetate copolymer is described in more detail, with emphasis on its suitability in aerosol hair sprays.

The vinyl acetate copolymer possesses the useful property of being both solvent and water soluble. Its ability to form a water soluble salt by neutralization with AMPD (2-amino-2-methyl-1, 3-propanediol) is a useful formulating tool. Unmodified the resin is not soluble in tap water but can be dissolved by soapy water. When neutralized it becomes water soluble. Slides are used to demonstrate these properties. A chart is also shown which gives the range of properties by varying the percent neutralization. Curves are shown which compare the rate of moisture pick up for the vinyl acetate copolymer and another water and solvent soluble resin. Film tack for these materials at different humidities is given in terms of Sward Rocker Hardness.

The experience of companies using this resin shows that it has satisfactory affinity for hair, good luster and curl control, and is non-hygroscopic, non-tacky and soap soluble. Commercial cold filling methods can be used, and tin lined cans are used without corrosion problems.

Tests for health safety include skin and eye irritation and acute oral toxicity—all according to methods outlined by Dr. Draize. A three month inhalation study is in progress.

A patent has been applied for covering the use of the resin and its neutralization in aerosol hair sprays.

The Closed, Open, Prophetic and Repeated Insult Patch Tests in Study of Cutaneous Reaction

Joseph V. Klauder
Consulting Dermatologist, Philadelphia, Pa.

The purposes of the patch test are: (1) to determine the range of concentration of a given substance that exerts (under the test conditions) a primary irritant action; (2) to determine if the skin is allergic to the tested substance; (3) to determine if a given substance has allergenic action sufficient under the test conditions to sensitize the skin by several or repeated applications; (4) to determine other untoward cutaneous reactions.

Definition is given of primary cutaneous irritant action and of a cutaneous allergen.

Discussion will be made of the closed patch test—covering the tested substance after application to the skin, and the open test—allowing the tested substance to remain on the skin uncovered.

In study of the allergenicity of a substance, the prophetic, or repeated insult patch tests, are employed. The prophetic test comprises two applications to the skin. It determines only primary irritant and allergenic action. The repeated insult test, by virtue of repeated applications, brings out the aforementioned reactions; in addition, a fatiguing action, irritant action on the follicles—follicultis, and other untoward cutaneous reactions.

Lantern slides will be shown of results obtained by the repeated insult test with different substances employing from 8 to 15 consecutive applications. Correlation will be made of these results with its actual use.

Discussion will be made of about what degree of allergenicity of a substance can be determined by these tests and what degree of allergenicity of a preparation contraindicates its commercial use.

Dental Calculus

Stanley Hazen and Helmut Zander
Department of Periodontology, Eastman Dental Dispensary

To study *in vivo* dental calculus, a polyester film, 25 microns thick, was contoured to fit the lingual surface and proximal surfaces of a lower anterior tooth. This film was fixed in the desired position with 0.10″ stainless steel ligature wire.

The polyester strips were allowed to remain on the teeth for a desired length of time. They were then carefully removed, fixed in 10% neutral formalin, embedded in celloidin and sectioned at twelve microns.

Serial sections were stained with haematoxylin and eosin so the morphology of the deposit could be studied, Von Kossa's silver stain to visualize areas of mineralization and bacterial stains to visualize the bacterial flora and its relationship to other structures. Polarized light and phase-contrast microscopy were also used to study these sections.

Some of the observations made were as follows:

(1) Morphologically, the calculus appeared irregularly layered. The depth of the deposit varied from specimen to specimen.

(2) A well formed cuticle-like structure was noted on most of the smooth polyester strips, situated between the deposit and the strip. When the strip was repeated and a roughened strip was used, no well-formed cuticle-like structure was observed. Therefore, it could be that this cuticle-like structure is a means of calculus attachment to a smooth surface.

(3) Salivary corpuscles and epithelial cells in various stages of degeneration were noted in every specimen. These cells were usually found in greater quantities on the surface of the deposit, but they could often be seen scattered in the deeper portions also.

(4) Mineralization was noted on all but a few of the strips. This degree of mineralization was reproductible with repeated strips.

(5) Areas of mineralization were found to occur on the strip, in the middle of the deposit, and on the surface of the deposit.

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(6) Two types of mineralization were noted. The predominant type appeared to be a mineralization process in which a pre-mineralized matrix was noted surrounding the developing areas of mineralization. Bacteria were always in and around these areas. The second type appeared to be due to a simple precipitation phenomena.

(7) Bacteria were seen in every specimen. They were predominately filamentous organisms of various types.

(8) There was a network or pattern seen in the mineralized portions of the deposit which could be recognized early in their formation.

New Polysaccharide Gums by Microbial Synthesis
Dwight L. Miller, R. F. Anderson, Allene Jeanes, and S. P. Rogovin
Northern Regional Research Laboratory, Peoria, Illinois*

The Northern Regional Research Laboratory at Peoria, Illinois, conducts utilization research on farm commodities. It has a full-time staff of about 350, of which about 200 are professional research personnel. Established in 1940, it has been a major factor in the development of such products as penicillin, gibberellin, vitamin B_2 and vitamin B_{12}, soybean and linseed oil products, and new crops. It has been extremely active in the fermentation field and is the world center for nonpathogenic and industrial yeasts, molds, and bacteria.

Microbial conversion represents an important method to chemically modify an agricultural ray material. Many gums and gumlike materials can be produced by this method and several are now under investigation at the Northern Laboratory. Three important ones that have been announced are: dextran, phosphomannan, and polysaccharide B-1459.

Dextran produced by Leuconostoc bacteria from sucrose is an important blood plasma extender. Commercialized during the Korean War, it received extensive use in hospitals and battlefields. Dextran is readily soluble in water, forms clear neutral solutions, and is highly stable in both solid and solution form.

Phosphomannan is a new phosphorylated mannan produced from glucose by a new yeast, *Hansenula holstii*, NRRL Y-2448. The polymer of the sugar mannose carries chemically combined phosphate groups and is different from any polysaccharide previously known. The major components are mannose, pyrophosphate, and potassium in the approximate ratio of 10:1:2.

Phosphomannan is produced as a white, slightly hygroscopic powder that dissolves readily in water. Solutions are clear and thixotropic and at concentrations above 1 percent have gel-like aspects. Viscosities of the 1 and 1.5 percent solutions are comparable with those of some of the commercial gums. It complexes readily with borax to give a cohesive gel that does not adhere to glass. Now under development are potential uses in hand lotions, paper, pharmaceuticals, textiles, drilling muds, and food products.

A new product, Polysaccharide B-1459, was announced in September of this year. It is a high-molecular weight heteropolysaccharide produced from glucose by the bacterium, *Xanthomonas campestris*, NRRL B-1459. Major components are mannose, glucose, potassium glucuronate, and acetyl in the approximate molar ratio of 2:1:1:1.

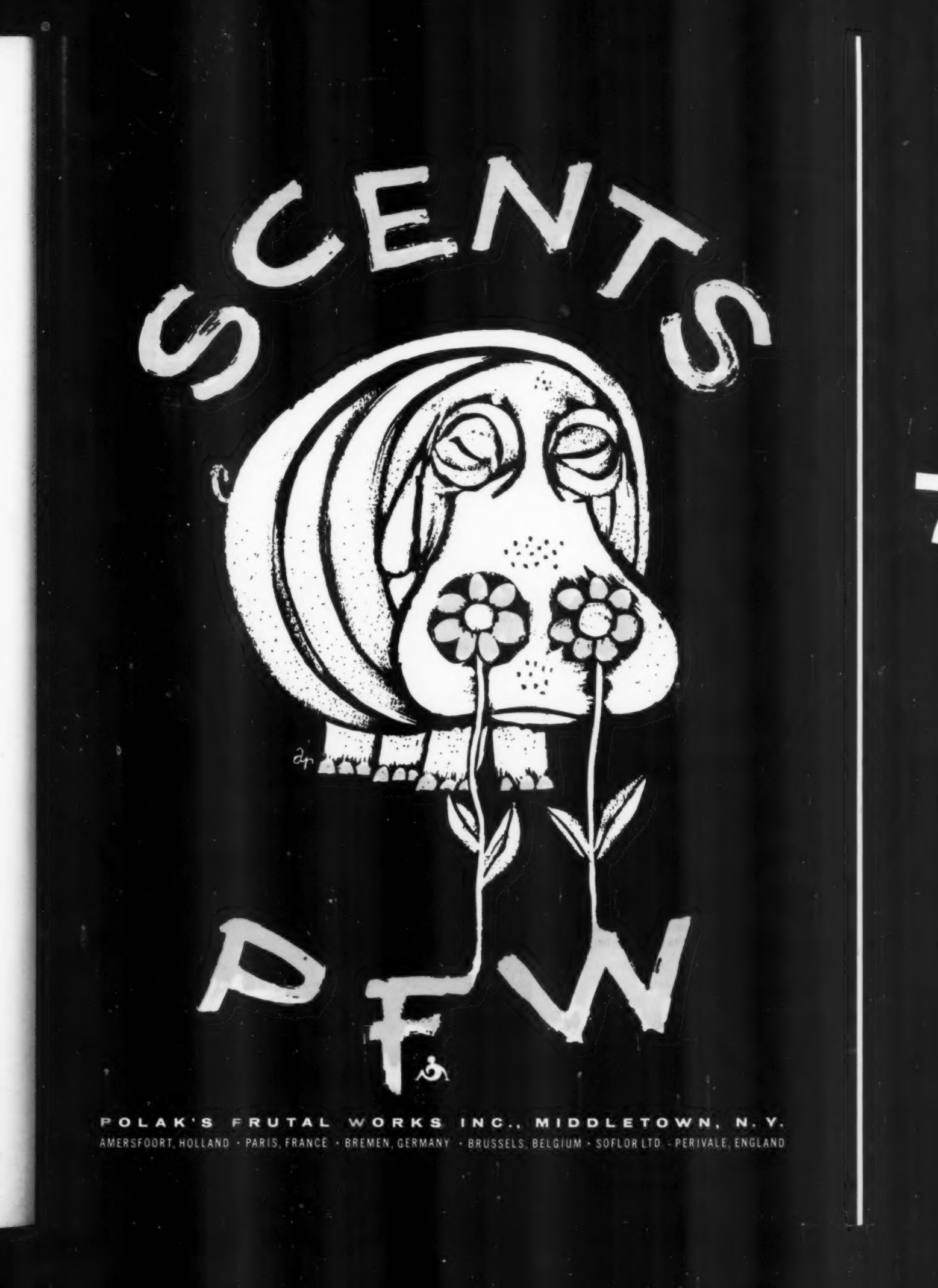
The gum is a soft, bulky powder slightly colored by pigment from the culture. The solid swells in water and dissolves to form homogeneous. opalescent, pseudoplastic solutions that set to a soft gel when cold. Solutions increase in viscosity in the presence of salt and are stable even when heated. Borax has practically no effect on the viscosity. Its unusual properties would indicate general and specialty applications in fields such as foods, pharmaceuticals, and petroleum.

* This is a laboratory of the Northern Utilization Research and Development Division, Agricultural Research Service, U. S. Department of Agriculture.

The Chemistry of Inflammation and Repair
J. C. Houck and R. A. Jacob
Biochemical Research Laboratory
Children's Hospital Research Foundation
Washington 9, D.C.

Using modified semi-micro methods for the determination of hexosamine, hydroxyproline and nitrogen, the effects of croton oil induced injuries in rat skin has been studied. The results indicate that there is a mobilization of collagen in the skin producing as much as a 70% reduction in the collagen concentration at the sight of injury, this reduction being paralleled by a general reduction up to 15% of the concentration of collagen in the uninjured skin. There is no equivalent "systemic" response with regard to hoxosamine or nitrogen. Expressing our results in terms of micromoles of hydroxyproline per millimole of nitrogen, we have been able to demonstrate that there is no variation in the valves of these ratios with respect to anatomical area, and there is no histological evidence of the systemic reduction in hydroxyproline concentration of the uninjured skin associated with inflammation. Preliminary evidence indicates that hydroxyproline component being mobilized from the uninjured skin is the material which would ordinarily be soluble in 0.5M sodium chloride (precollagen) or citric acid buffer (procollagen). Histological techniques would not demonstrate the existence of, or alterations in, the amount of these "pre-or procollagens." Quantitative data exists to indicate that this "systemic" response to injuries of varying intensity is due to the almost total loss of the soluble collagen fraction of the uninjured tissue. The percentage of the soluble collagen loss during the systemic response to local inflammation was independent of the concentration of the irritant. This finding is in contradistinction to the variable dependence of local loss of collagen to irritant concentration. There apparently is a "threshold" size of local injury which produces the systemic response. In view of the apparent threshold size of the injury, the effects of the variety of neural blocking agents upon the "systemic" response were investigated. Preliminary information indicates that local blocking agents, as well as central nervous system blocking agents, decreased the "systemic" response to local injury.

In view of our recent isolation of the first mammalian collagenase from the pancreas, and since we have preliminary information which indicates that skin contains a protease capable of attacking collagen, we believe that the "systemic" response to local inflammation involves a neuro-hymoral activation of a precurser of a collagenolytic enzyme in the skin. As a consequence of the activity of this enzyme, the soluble collagens are rendered more soluble. This solubilized collagen disappears from the skin by way of lymphatic drainage and since it does not appear in the circulation, it must be sequested by the reticular endothelial system. Preliminary results with regard to the sensitization of animals to soluble collagen, and the immuno-chemical consequences of this work, will be discussed.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News and Events

Chesebrough-Pond's to Acquire Aziza Eye Cosmetics of Mauvel

Jerome A. Straka, president of Chesebrough-Pond's Inc., and Maurice Levy, president of Mauvel, Ltd., announced jointly that an agreement has been reached whereby Chesebrough-Pond's will acquire the Aziza Eye Cosmetics Division of Mauvel Ltd., through an exchange of stock.

"This quality line of eye cosmetics," Mr. Straka said, "well be merged into our Prince Matchabelli, Inc. operations because of the similarities in merchandising policies and retail outlets, and because it will add a new dimension to our Prince Matchabelli perfume and fragrance business.

Strong Cobb Enters Aerosol Packaging Field

Strong Cobb Arner Inc., custom manufacturer of pharmaceutical and allied food and chemical products, has entered the aerosol packaging field through the acquisition of the assets and business of PanPak, Inc. PanPak is currently engaged in research in new concepts of pressure-packaging drug, food and chemical products. It operates four modern packaging lines including a high-speed rotary line. PanPak will continue operations in its Attica, N. Y. plant.

Dr. Ernest Guenther Addresses Chicago S.C.C.

Dr. Ernest Guenther, vice president and technical director of Fritzche Bros. Inc., addressed the Chicago Chapter of the S.C.C. on Nov. 10, describing some of the adventures of his most recent trip to South America, and showing some of the moving pictures he took while on that trip.

Stanley Rutowski Joins Perry Brothers, Inc.

Perry Brothers, Inc., manufacturing perfume chemists, announces that it has engaged the services of Mr. Stanley F. Rutkowski as perfumer. Previous to this appointment, Mr. Rutkowski served as perfumer with van Ameringen-Haebler, and for the past 12 years was a perfume chemist with Givaudan-Delawanna.

"Fine Art" Theme of D&O Christmas Package

The theme of this year's Dodge & Olcott Christmas package is "Fine Art . . . Fragrance by Dodge & Olcott, Inc." The package consists of two aerosols containing perfumes created by D&O. One represents classic Greek art and the other modern sculpture, with fragrance to match.

Max Factor Announces Earnings Up 71 per cent

With results of the third quarter representing a continued rapid rise, Max Factor & Co.'s 1959 nine months earnings were up 71 per cent on a 22 per cent sales increase, President Max Factor, Jr. announced today.

Net profit for the nine months ended September 30, 1959 was $2,678,585, equal to $1.27 a share on the 2,115,500 shares of Class A and Common stock outstanding. This compared with $1,569,141 or 74 cents a share on the same number of shares outstanding a year earlier. Net sales for the intial three quarters were $37,651,339 compared with $30,898,384 for the corresponding period last year.

Japanese Cosmetic Leaders Visit Helene Curtis Industries

A twenty-man delegation representing the Tokyo Cosmetic Industry Assn. recently visited Helene Curtis Industries, Inc., in Chicago. Part of a European and American tour, the delegation's prime interest was to observe the beauty production methods around the world.

Guests of Willard Gidwitz, president of Helene Curtis Industries, Inc., they were conducted through the offices, plant and scientific laboratories where they were exposed to modern American methods of cosmetic production, product development and distribution patterns.

The delegation was led by executives of the Arimino Chemical Co., Mr. Arimi Tao, President, Mr. Motomu Isobe, Technical Director, and Mr. A. Ray Tominaga, Manager of the Foreign Department. They told of the spectacular growth of the Japanese cosmetic industry in the last three years, with today's figures showing an estimated one-half of the country's fifty million women using cosmetics. Hair sprays, color rinses and hair preparations have reached unprecedented popularity.

Japanese Cosmetic Executives shown touring the Helene Curtis plant in Chicago . . . watch the operation of the "Click" Cold Wave packaging line.

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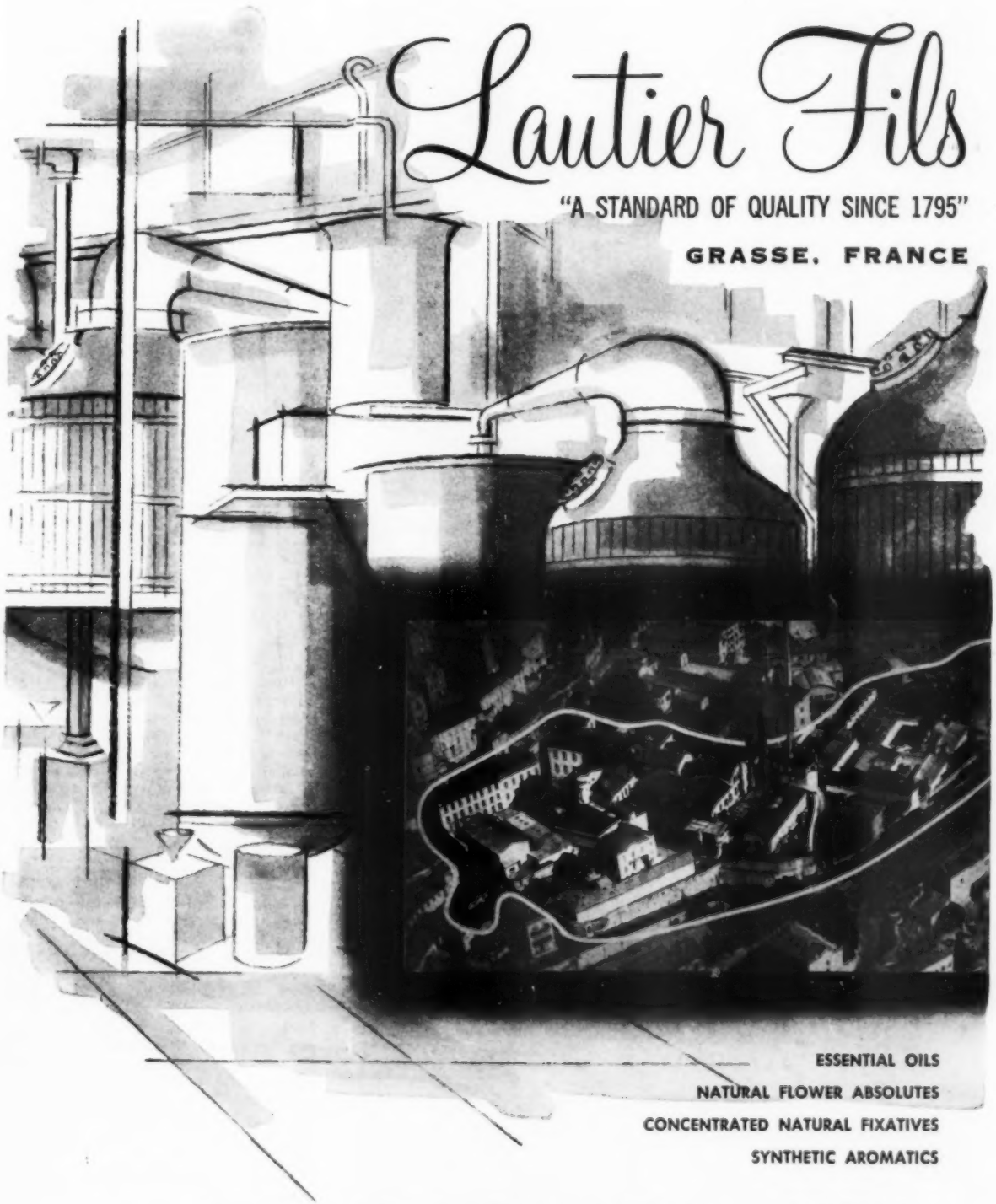

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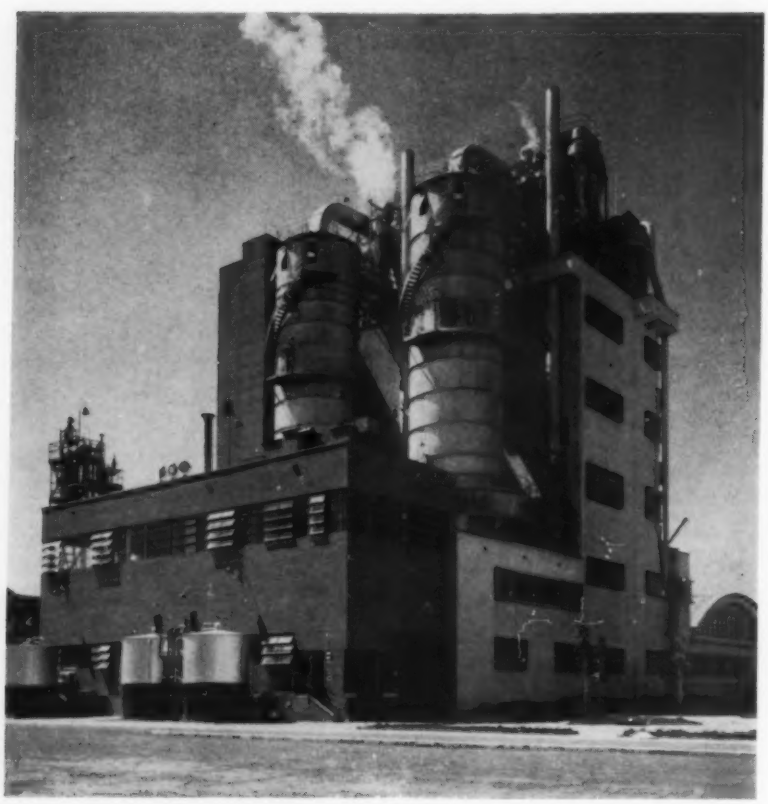
BRECK TO SPONSOR "SUNDAY SHOWCASE"

EDWARD J. BRECK (left), President of John H. Breck Inc., shakes hands with Robert Kintner, President of N.B.C. at conclusion of signing of contract for the hair preparation firm's 1960 sponsorship of "Sunday Showcase" series of dramatic "Specials" over the nationwide NBC-TV network.



External view of detergent plant of Colgate subsidiary in Italy

Society of Cosmetic Chemists Announces Election Results

The New York Chapter of the Society of Cosmetic Chemists announces the following results of this years election. President-Elect: Sophie L. Plechner; Secretary: Robert Kramer; Treasurer; Lester I. Conrad; Directors: Theodore Ostrowski and Martin Rieger.

Evans Research Appoints New Project Leader

Evans Research and Development Corp. has appointed Robert A. Johnston Research Project Leader in materials application research, as a part of the continuing program of expansion to satisfy increasing requests for outside research. Mr. Johnston has extensive experience in the ultization of polymeric materials, particularly in such areas as coatings, textiles and plastics.

Avon Products Increases Quarterly Dividend Rate

Directors of Avon Products, Inc. today established an increased quarterly dividend rate on the common stock outstanding as a result of the recent 3-for-1 stock split, and also declared an extra dividend. The board declared a quarterly dividend of 20 cents per common share and an extra dividend of 5 cents per share, both payable December 1, 1959 to holders of record November 16, 1959.

These dividends would be equal to 60 cents per share and 15 cents per share, respectively, on the stock outstanding prior to the stock split that became effective October 26, 1959, and compare with quarterly dividends of 40 cents per share paid in previous quarters of 1959.

Two Join Fritzsche Quarter-Century Club

George R. Fellows, in charge of Fritzsche Brothers' Atlanta Branch Office, and James F. Shumaker, Manager of the Philadelphia branch, observed their twenty-fifth anniversaries with the New York essential oil and chemical firm on November 1st. Celebrations were held in their respective cities with company-sponsored champagne dinners attended by members of their immediate families and their staffs. Government bonds and engrossed scrolls were presented in recognition of their long service.

Colgate-Palmolive Opens Plant in Italy

The new 10 million dollar plant, Palmolive S. p. A., a subsidiary of Colgate-Palmolive International, was inaugurated October 30 at Anzio, Italy.

One thousand people are employed at the plant. Twenty-one different products are manufactured. These range from detergents and soaps to the most widely-sold cosmetic articles.

International Flavors Promotes Two in Expansion

International Flavors & Fragrances Inc. recently announced a further expansion of its Flavor Division in New Jersey, and at the same time disclosed

Henri van Mameren

Dr. James H. McGlumphy

that Henri van Mameren had been named General Manager, and Dr. James H. McGlumphy Technical Director in charge of research, manufacturing and product control.

Helene Curtis Announces Quarterly Dividend

Helene Curtis Industries, Inc., on November 9, announced a quarterly dividend 10¢ a share on Class A shares of record December 1, 1959, payable December 15. Additionally, a 1% stock dividend was declared.

Dorothy Gray Fetes Mrs. Ethel Hardy, Retiring

A farewell dinner was given at Manhattan House, New York, by Dorothy Gray, Ltd., recently to commemorate the retirement of Mrs. Ethel Hardy, director of retail sales training, and an executive of the company for nearly 30 years.

Mrs. Hardy began with Dorothy Gray as a special representative in the southeast and southwest, combining store-promoted visits with training and behind-the-counter selling. This work was expanded to a national scale and following this, she became a saleswoman in Texas, Oklahoma and Arkansas. She now intends to relax in her home town, Dallas, Texas.

SENATOR GOLDWATER ADDRESSES GCMI MEETING

Senator Barry M. Goldwater of Arizona (left), Mrs. Edmund F. Ball, and Mr. Ball (right) pictured in Phoenix during the recent semi-annual membership meeting of the Glass Container Manufacturers Institute. Sen. Goldwater addressed some 250 industry representatives and their wives at the second session of the three-day GCMI meeting, choosing as his subject "The Responsibilities of Businessmen to Government." Mr. Ball, president of Ball Brothers Company and a past president of GCMI, introduced the Senator.

FEMA Announces Convention Plans

At the recent Board of Director's meeting of the Flavoring Extract Manufacturers' Assn., it was unanimously decided to hold the 51st annual convention at the Hershey Hotel, Hershey, Pa., May 1 thru 4, 1960.

OBITUARY

Arch Payne, recently elected assistant vice president of Florasynth Laboratories, Inc., passed away suddenly on October 29, while on a business trip in Richmond, Va. He was 60 years old. For the past 10 years, Mr. Payne had been East Coast Sales Manager at Florasynth.

MRS. ETHEL HARDY RETIRES

Ethel Hardy, director of retail sales training and an executive of Dorothy Gray, Ltd., for nearly 30 years, is feted in New York by the organization at her retirement. Well wishers shown here (left to right) are Harry Corriden, field sales manager of Dorothy Gray, James Boohecker, general manager of Dorothy Gray, and Walter Plaut, vice president for administration of Lehn & Fink Products Corp.

CALIFORNIA COSMETIC ASSN. OFFERS TRIP AS PRIZE

Mrs. Roy Iverson and Mrs. Max Quimby (ctr. r. to l.), Chairman and Co-Chairman of the California Toiletries Representatives Entertainment Committee, with George Liberace and Western Airlines Flight Crew, inspecting facilities for the Grand Prize offering at the C.T.R. Annual Christmas Party which will be "Fiesta Flight." This "Gala" will be held at the "Star on the Roof" of the Beverly Hilton Hotel, Beverly Hills, Calif., where George Liberace will entertain.

Shulton Schedules Heavy Pre-Christmas Campaign

The biggest barrage of Christmas advertising ever packed into the 10-day pre-holiday period in the toiletries industry has been scheduled by Shulton, Inc., it was announced by Gilbert J. Supple, advertising director. The record-breaking program includes both network and spot TV and radio, magazines and newspapers. It is estimated that TV and radio schedules alone will reach an audience of more than 100,000,000.

S. B. PENICK, CHICAGO, 25TH YEAR

Shown at the 25th anniversary celebration of S. B. Penick's Chicago branch are Ralph A. Olson (left) and Harold A. Meyer.

Ralph Bennett, Edward Chase Form Advertising Agency

Bennett & Chase & Co., Inc., a new advertising agency, has been formed by C. Ralph Bennett and Edward G. Chase. Both have resigned from Fred Gardner Co. Inc., where Mr. Bennett was one of the founders, a director, and executive vice president and creative director; and Mr. Chase was vice president and account executive for the agency's major accounts. Mr. Chase is widely known in drug and cosmetic advertising fields. Mr. Bennett has created all Norda advertising for the last 11 years, beginning with "Norda Makes Good Scents," the well known and much imitated Norda slogan.

Herbert W. Hamilton Receives CSMA Award

Herbert W. Hamilton, for many years secretary of the Chemical Specialties Manufacturers Association has been selected to receive the 1959 Achievement Award of CSMA. He was chosen to be the seventh recipient of the honor, which is presented annually for "outstanding contributions in the field of chemical specialties."

S. B. Penick, Chicago, Celebrates 25th Year

On October 31st the Chicago branch of S. B. Penick & Company celebrated its 25th anniversary. Over fifty people including present and former members of the staff attended a party held to commemorate the occasion.

An important sales and distribution center for the Midwest, the Chicago branch was established in 1934 by Harold A. Meyer. In 1946 Mr. Meyer rejoined Penick's home office in New York to supervise general sales of botanical and allied products. Since that time Ralph A. Olson has been in charge of the Chicago operations. Both Mr. Meyer and Mr. Olson are vice presidents of S. B. Penick & Company.

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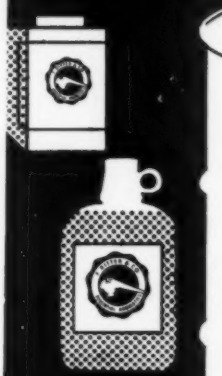

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40 MILLION AEROSOL UNIT SALES IN 1960 FORECAST

Brian A. Kirk, right, sales and development director of Bespak Industries, Ltd., sales agency for aerosol valves made in Great Britain under license from The Risdon Manufacturing Co., predicted that sales of aerosol units in Great Britain will reach 40 million in 1960. On a recent business trip to the United States, he said that about 25 million units are expected to be sold there this year. Mr. Kirk is shown here conferring with Donald S. Tuttle, Jr., sales manager of Risdon's Aerosol and Cosmetic Divisions.

Colgate Enlarges Buildings of Toilet Articles Division

The Colgate-Palmolive Company has embarked on a major construction program for the Toilet Articles Division at its Jeffersonville, Indiana, Plant to speed up service for Midwestern and Southern customers.

Frederick L. Stephens, Director of Manufacturing of the Toilet Articles Division, said the project, which totals more than a million dollars, includes a four-story addition to the present Toilet Articles manufacturing building, a two-story addition to the Division's Packaging and Shipping center, and a new two-story warehouse for supplies and finished products.

Soap and Detergent Sales Set Record High for 9 Months

Soap and synthetic detergent sales set a new record high for both pounds and dollars during the first nine months 1959, according to reports from sixty-two manufacturers participating in the Sales Census conducted quarterly by the association of American Soap & Glycerine Producers, Inc. Sales of soap and synthetic detergents totalled 3,236,700,000 pounds valued at $830,222,000, up 4.7% and 5.5% respectively, from the first nine months 1958.

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Helena Rubinstein Host to Polish State Folk Ballet

The Polish State Folk Ballet group which recently appeared at the City Center in New York City, was honored during its visit by a reception in the home of Madame Rubinstein. In these photos Madame Rubinstein talks with members of the internationally famous ballet group.

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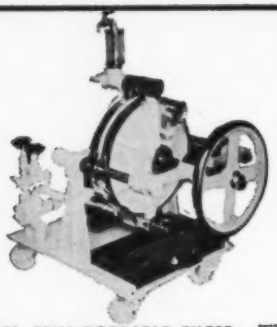
for the Perfumer



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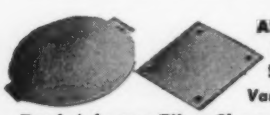

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DR. CARL WALTER ADDRESSES OVERSEAS PRESS CLUB

A public education program to combat growing community problem of cross-infection was discussed by Dr. Carl Walter (left) at the Overseas Press Club with editors, writers, educators. With him above are Dr. Robert Prindle (right), director of the Home Health Information Bureau of Lehn & Fink Products Corp., and Dr. Emil Klarmann, manager of technical services for Lehn & Fink.

Helene Curtis, Inc. Wins Industrial Award

Helene Curtis, Inc. was one of three companies honored October 20 by the National Commercial Finance Conference.

The winners of this year's awards—impressive scrolls designated "The 1959 Commercial Finance Achievement Award"— were chosen from nominations larger in number than in any of the five years since the awards program was initiated. The task of selecting the best-qualified nominees was undertaken by Dean Emeritus G. Rowland Collins of the Graduate School of Business Administration, New York University, who served as chairman of the judges' committee.

The success stories of the three companies and their founders were recounted by Herbert R. Silverman, president of James Talcott, Inc., and conference honorary chairman.

Helene Curtis Industries was established in Chicago in 1927 by Gerald Gidwitz and Louis P. Stein to manufacture facial mud packs. As they expanded their product line to hair care preparations and machines, they were overcome by the depression. The company's net worth was small, $34,000. Their problem: they needed financing at a time when lenders and investors with faith in business growth were few.

A commercial finance company came to their rescue with $20,000 in notes and accounts receivable. Helene Curtis business prospered. By the start of World War II, annual sales rose to $3,000,000. By 1946, the company's sales had jumped to $14,295,000.

Then they diversified. Developers of beauty aids from shampoos to hair sets, Helene Curtis started to produce bombsights, radar equipment and aircraft machine gun turrets.

Came the end of the war—and readjustment. By the end of '49, the relationship with the commercial finance company had grown from the $20,000 pledges of 1932 to a direct obligation to the finance company of $1,152,000. Early in '50, the company secured a term loan from a major insurance company and the finance company's advances were repaid that year.

By 1959, Helene Curtis had pushed up sales to the $50,000,000 level. As of February 28, 1959, the company's net worth had risen to $10,962,000.

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PERSONALITIES

Roland M. Kary

Roland M. Kary, Ph.D., has joined Continental Filling Corp. to take over the position of Director of Research. Dr. Kary will be in charge of research and development, quality control, and production control.

J. Albert Woods was elected a director of Lehn & Fink Products Corp. at the

J. Albert Woods

company's annual meeting. Mr. Woods was formerly president and director of Commercial Solvents Corp., vice president of W. R. Grace and Co., and president of Chilian Nitrate Sales Corp.

Edward A. Coleman, plastics sales representative in the New York office of the Closure and Plastics Division of Owens-Illinois Glass Co., has been appointed Eastern manager—closure sales.

Robert H. Gilliam has been appointed manager of the Orlando Drug Division of McKesson & Robbins, Inc., according to a recent announcement by J. H. McMaster, vice president of McKesson's Southeast District.

Joseph T. Hanlon

Joseph T. Hanlon has been appointed Manager of Advertising and Sales Promotion of Crown Cork & Seal Co., Inc. He has been engaged in Crown's advertising and sales promotion for 20 years.

Roy A. Parker

Roy A. Parker has been named Kansas City Sales Division Manager for U. S. Industrial Chemicals Co. Mr. Parker has been associated with U.S.I. for the past 33 years and, prior to his new assignment, was manager of the company's Kansas City, Missouri Sales Office.

Bob Hawk'ns has been appointed a Dorothy Gray representative in the Washington, Virginia and Maryland areas, where he will assist John J. McCormick, senior representative.

Marshall Ward has been appointed to the position of Product Manager in the Toilet Articles Division of the Colgate-Palmolive Co. Formerly manager of Market Research, Mr. Ward succeeds Paul Byrne who recently was named New Products Manager for Colgate's Toilet Articles Division.

Ernest R. Sloan

Ernest R. Sloan has been named vice president of Charles of the Ritz, Inc. Mr. Sloan has been associated with the firm for the past seven years as Plant Manager and Director of the Research Laboratories in Norwalk, Conn. He will continue to direct the manufacturing operations.

George H. Cadgene

George H. Cadgene has been appointed Director of Purchases for the domestic operations of International Flavors & Fragrances Inc. Mr. Cadgene fills the position formerly held by Robert L. Stickney, who becomes Assistant to the President. Before joining IF&F, Mr. Cadgene was associated with Trubek Laboratories.

Joseph P. Palumbo has been appointed manager of the plastics industry division of Nuodex Products Co., a division of Heyden Newport Chemical Corp. Mr. Palumbo was formerly product sales manager for organic peroxide catalysts and accelerators, and, in his new position, will administer the enitre plastics industry line.

Joseph G. Longstreth

Joseph G. Longstreth has been named Manager of the St. Louis, Missouri sales office of U. S. Industrial Chemicals Co., Division of National Distillers and Chemical Corp. Mr. Longstreth has been a sales representative for the company in the St. Louis area since he joined U.S.I. in 1955.

Kenneth E. Denson has been appointed a sales representative in the St. Louis area for Knox Glass, Inc. He has been associated with the glass firm since 1952.

Philip Bradford has been appointed regional manager for the mid-west by Coty, Inc. Bradford joined Coty in 1939 and has been District Manager for Metropolitan Chicago.

Pauline Foster

Pauline Foster, vice president in charge of marketing for Faberge Perfumes and Juliette Marglen, will retire from active duty at the end of this year, after 30 years in the domestic industry. Miss Foster will continue her relationship with Faberge on a consultant basis.

Max Unthank has joined Pace, Inc., private label and contract aerosol packer, as chief chemist. Most recently he was a cosmetic chemist with Delaware Valley Laboratories.

James Dugan, D & O Boston sales representative, represented the President of Manhattan College, Brother Augustine Philip, at the inauguration of Dr. Asa S. Knowles as President of Northeastern University in Boston.

Seymour S. Sitzman

Seymour S. Sitzman has joined Coty, Inc. as North Eastern Regional Manager. Prior to his affiliation with Coty, Sitzman was Field Manager for Johnson & Johnson.

Carl A. Bergman has been appointed to the new position of Chemical Sales Manager, Southern Region, General Dyestuff Co., a sales division of General Aniline & Film Corp. In his new capacity, Mr. Bergman will direct and coordinate chemical sales in the Charlotte and Chattanooga branches of the company.

Samuel F. Melcher, Jr. has been named group brand manager in the Lehn & Fink Division of the Lehn & Fink Products Corp.

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Wallace T. Drew

Felix Bronneck

Elizabeth Holloway

Wallace T. Drew, vice president in charge of marketing for Coty, Inc., has been elected to the board of directors of that company.

Sidney J. Natkin has joined Helene Curtis Industries, Inc., as a marketing executive. Before joining Helene Curtis, Natkin was a vice president and account supervisor with Gordon Best Co., Chicago based Advertising Agency.

William J. Gangwisch has been appointed to the Cleansers and Specialty Products Section of the Colgate-Palmolive Company's Household Products Research and Development Dept.

Felix Bronneck has joined Dome Chemicals, Inc., a subsidiary of Miles Laboratories, Inc., in the newly created post of manager of advertising and promotion. As manager of the enlarged Dome advertising and sales promotion division, Mr. Bronneck will be responsible for all ethical advertising and trade promotions for the company.

Frank T. Cantrill, manager of sales of Owens-Illinois glass containers to the food industry in New York for the past two years, has been named manager of the company's Glass Container Division branch in Detroit. Mr. Cantrill previously headed division branches in Oklahoma City and Richmond, Va.

Miss Elizabeth Holloway has been appointed as a product manager in the Marketing Division of Coty, Inc. She was formerly with Revlon, Inc., and before that with McCann-Erickson, Inc. Miss Holloway came from Washington, D. C. where she was owner of Style, Inc., an industrial interior design firm.

John J. McAnally has been promoted to Assistant to the President of Thomasson of Pa., Inc., custom packagers of aerosol products of all kinds. Mr. McAnally is a veteran of 10 years in the aerosol protective coatings industry.

Palmer L. Jenkins has been appointed sundries manager of McKesson & Robbins, Inc.

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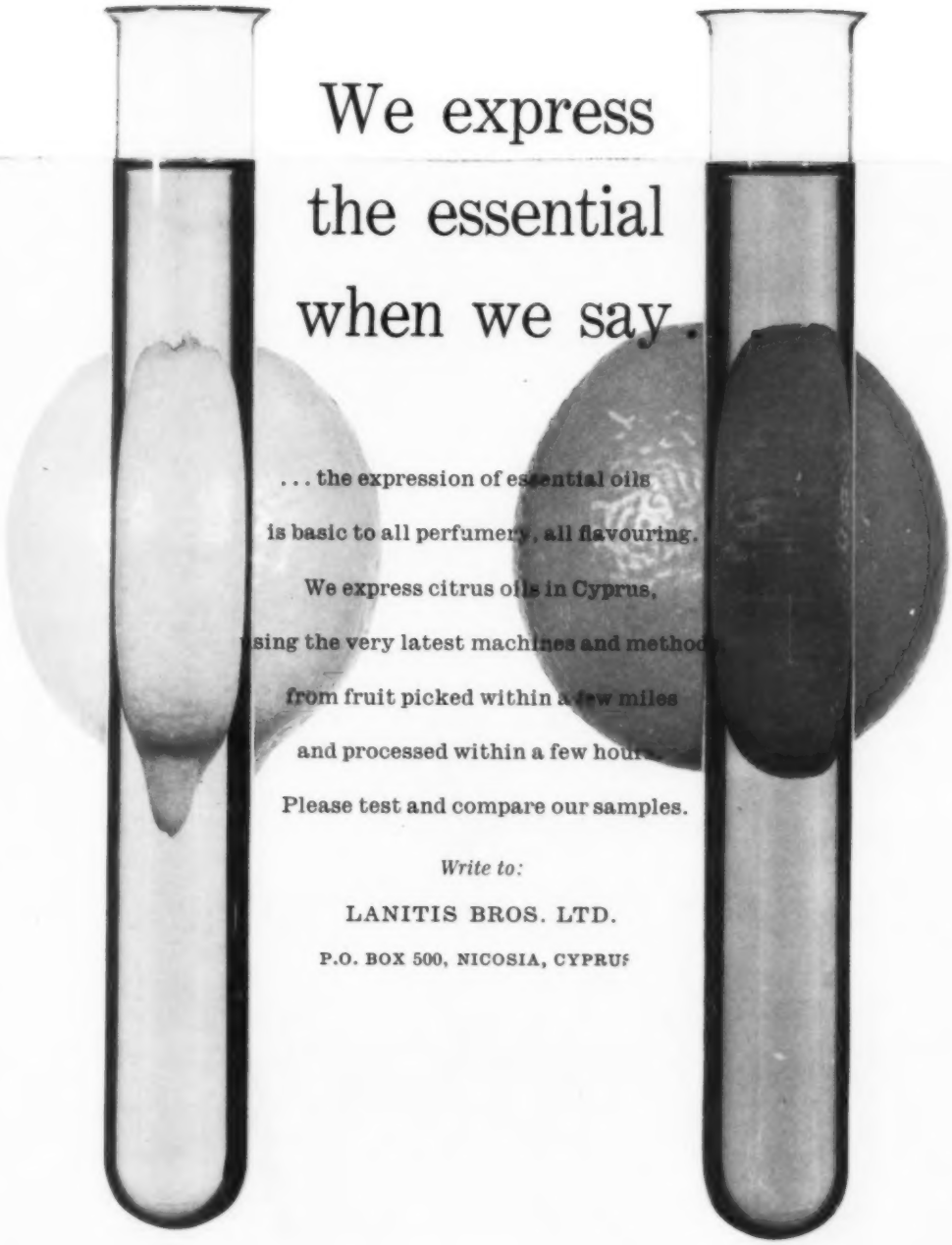

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